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BRATTLEBORO, VT.
1917

THE NEEDY CHILD—FROM THE VIEWPOINT OF THE STATE BOARD OF HEALTH

BY CHARLES S. CAVERLY, M. D.,
PRESIDENT VERMONT BOARD OF HEALTH

(Read at Conference of Charities and Correction, Montpelier,
January 24, 1917)

For the purposes of my paper, I will consider "the needy child" as the child of destitute, diseased or vicious parents, or without parents. He is one of a large family often with no one competent or willing to care for him. Such a child may become the legitimate concern of health officials, when he endangers the public health by reason of being diseased himself or liable to contract contagion from his environment.

I might say at once that the health official, as such, is not concerned with the vicious, criminal or incorrigible, unless such child, in one of the ways mentioned, is liable to become a menace to the health of the community. The distinction between those who are victims of poverty or of ignorant or vicious parents—the unfortunates—and those who are diseased and dangerous to the public health, is not always considered by those who appeal for help to Health Boards.

Health Boards, state and local, are very apt indeed to become the repository of complaints in regard to unfortunates of all descriptions. The following are illustrations: This from a clergyman:

"There is a situation in the town of ———— which demands attention. A family named ————, consisting of father, mother and nine children, live in a one-room shack with a little 'lean-to.'

"The shack is scarcely fit for a horse to live in and yet this family all make their home in it. The ————s have lived in the shack and have been multiplying their kind for seven years and yet the local Board of Health has taken no action in the matter." Etc.

And this is from a clergyman's wife:

"You have heard of the little child at ———— who is living in such awful condition. That dreadful woman prowls about the neighborhood nights and drags that child with her. She takes dope and dopes the child. He sleeps in the same room with the woman and man. * * * They are not married. * * * The filth is appalling. * * * If it was an old horse, it would be taken out and shot, but a little child is left to suffer and be ruined." Etc.

Truly, appealing cases! Such cases furnish reason for this organization. Vice and disease are, it is true, associated, and frequently involve childhood; but, in the absence of disease or danger to public health, Health Boards can hardly take official action.

The Public Health Laws of Vermont prescribe that the State Board of Health "shall take cognizance of the interest of the life and health of the inhabitants of the state." In taking such cognizance, the Board of Health is bound to give attention to the health of that portion of the inhabitants of the state, which is of an age most open to attack by preventable disease, of an age least able to take care of itself.

The children are the state's best asset. Fortunately, the greatest achievements of modern preventive medicine have been in safeguarding young life. All of the infectious diseases find childhood their most fertile field. The steadily dwindling death rates from all the infections mean a larger percentage of children coming to adult life. Not only are Health Boards bound to protect children from the preventable infections, but they are everywhere seeking to improve those conditions that make for clean and vigorous man and womanhood. To this end, they do much missionary work; they cordially co-operate with organizations of this character. They everywhere do much educational work in general sanitation and in regard to the nature and prevention of specific diseases, like tuberculosis and venereal diseases. But it must never be forgotten that in their official actions, Health Boards are bound to conform to legal restrictions.

Childhood and Child Hygiene have received and are still receiving much attention from Boards of Health. The educational campaign involves the home and the school. The Health Board, in co-operation with the social worker, the church and the educational department of the state, are interested in the growing human animal. But Health Boards are especially interested in that animal as such, i. e., in his body. His moral and intellectual nature belongs particularly to other departments. "The needy child" is entitled to a very large share of the interest that attaches to these several departments.

The problem of the needy child in the city has been much more carefully worked out than the same problem in the country. Organizations of various kinds—hygienic, sociological and religious—and public institutions have devoted themselves to the practical solution of the child-hygiene problem as seen in the slums and crowded tenements. It has been too largely taken for granted that the country child must grow up clean and healthy in mind and body by virtue of his surroundings. The atmosphere and living conditions of farm and village to most people are synonymous with physical strength and purity.

It is undoubtedly true that crowds breed pestilence. It is likewise true that pestilence is not peculiar to the crowded city. Rural Vermont has her slums as well as the city. Proportionate to her population, these are as serious a problem here as in the metropolis. A visit to homes in some

of the remote districts of our mountain towns will, I am sorry to say, reveal conditions as demoralizing to soul and body as exist in congested districts of great cities.

Speaking then from the viewpoint of the health official, let me call your attention to some of those phases of the needy child problem that have to do with his physical health and the physical well being of the community. In doing this, you will pardon me if I speak very plainly of conditions that are too often unknown or ignored by the public. Perhaps the most common situation that confronts the health official in this connection is the contagious disease, the case of diphtheria, scarlet fever, typhoid fever, smallpox or infantile paralysis, in the small two- or three-room house with several other children besides father and mother. The bread winners may be both the father and mother and, perhaps, one or two of the older children.

The quarantine, if the case is one of these acute quarantinable diseases, may shut up in these narrow limits one or all of the bread winners and the well children of the family. Of course, the situation thus created is a serious one, as far as the family itself is concerned, and is apt to be expensive to the town. Worse than that, the disease is pretty sure to involve the rest of the family, inasmuch as case-isolation, under these circumstances, is practically impossible. Proper care and nursing of the sick is also impossible.

The proper care of the acute contagious diseases, under such conditions as these, is a very serious question and one that is of exceedingly common occurrence. It is not confined to villages and cities, but occurs in isolated hamlets and far from neighbors.

There is only one satisfactory way of handling such a situation and that is to be able to remove the case to a proper isolation hospital. A *proper* isolation hospital is comparatively unknown, I am sorry to say, in Vermont. There are less than half a dozen towns in the state having any kind of hospital for taking care of such cases and, such as they are, are seldom fit for this use. Section 5439 of the General Statutes gives towns authority "to combine to build, equip and maintain isolation hospitals." So far as I am aware, no towns in the state have thus far taken advantage of this Act.

The need of isolation hospitals in rural communities in New England is very palpable and urgent. Indeed it is comparatively rare to find a city or large village with such facilities.

There have been at various times, as the necessity arose, houses in the outskirts of towns and cities pressed into use as "pest-houses," usually under the lash of threatened panic from smallpox. Comfortless, desolate, unattractive, lacking the first requisites of a hospital, no one can blame children or their fathers and mothers for objecting to being transferred to such places.

A comfortable isolation hospital in any community would relieve a

very trying situation in cases of diphtheria, scarlet fever, smallpox, infantile paralysis and various other diseases, as far as the quarantine is concerned, and would serve the best interests of the patients themselves, inasmuch as it would offer them the best possible chance of recovery without permanent impairment of any part of the body. Furthermore, it is not only a relief to the family, in that they are relieved of a burdensome quarantine, but it furnishes the best possible protection for the community. In times of epidemic, such an institution substitutes one focus of infection for many.

An isolation hospital should be a hospital and not a "pest-house." It should be arranged in accordance with hospital architecture, be properly equipped and have proper and real nurses. There is probably no other detail of our equipment for handling diseases, not only among the needy children but among the well-to-do as well, that would prove as good paying an investment for our Vermont towns. The problem of handling the acute infections among needy children, whether in the city or the country, can only be successfully solved in this manner.

There are certain other points at which the health official comes in contact with the needy child. We have constantly with us the tuberculosis problem. We have not begun as yet to solve that problem in our state. Let me quote from a recent communication, which has come to the State Board of Health on this subject of tuberculosis. The following is from a school superintendent. He says:

"There is a negro family living there by the name of _____ that has been afflicted with tuberculosis. The mother is reported to be in the advanced stages of the disease. Two children have died of it during the last year, and two others have been patients in the Sanatorium at Pittsford.

"The father insists upon having these two, who have been in the Sanatorium, as well as two other children in the family, attend school.

"I believe that the family are a real menace to the health of the other members of the school."

A personal appeal from another source tells of a family of six children, the oldest fourteen, and father and mother, who live in a four-room house.

The father gets \$9.00 a week, when able to work, which is not continuously, as he is not strong or well.

The mother has tuberculosis, but goes out doing day work, as she is able. The two oldest children have suspicious coughs and all the children are in the public schools.

These are sample communications. They might be multiplied.

We have not made any provision, as a state, for the care of advanced cases of tuberculosis, or for the children of tuberculous parents. It is not

necessary for me to emphasize the danger to children of living in close environment with open cases of this disease. It is pretty generally known that 90 per cent of all children, who live to the age of 15 years, become infected. A large proportion of these, of course, never develop the disease. A small proportion do, sometimes early, more often, later, in life. These latter are quite apt to be the children with the hereditary predisposition.

Most of our large cities and many small ones have recognized the seriousness of this problem of the tubercular child and have made provision for his education in so-called open air schools.

The situations described above are not uncommon in our Vermont towns. We have neither a sanatorium for advanced cases nor an open air school for children who are predisposed. Both of these shortcomings on the part of our state should receive legislative attention. The need of provision for advanced cases may be really characterized as a crying need. Complaints of poor, tuberculous families, with advanced cases in close association with small children, are constantly developing in all sections of the state. They are quite apt to spend their last days in the poorhouse, where they are brought into contact with other unfortunates, who become easy victims of contact infection. The advanced cases should be provided with proper sanatorium care and the weaklings among the children should be given an opportunity to get health and education together in the open air school.

Health inspection of the public schools, in cases of children showing the chain of symptoms characteristic of the tubercularly inclined, may be of great assistance in detecting this condition. Such inspection contains great possibilities for the needy child. It may ensure early detection of tubercular tendencies and their removal. It may also safeguard the child against other chronic affections as well as the acute contagious diseases.

Health inspection in the schools may be made of the highest importance to the individual and to the community. It is an axiom that the early detection of any of the infectious diseases makes it possible to limit the spread of the disease and gives the individual the best opportunity for recovering. Health inspection in the schools should not be confined to a handful of the larger towns; its benefits should reach into every part of the state.

To this end, inspection districts of convenient size might properly be adopted as units for health inspection.

A qualified medical man employed in each of these districts would ensure early detection of chronic disease or weakness as well as the acute infections. His advice should be given effect and made of practical value to the child by the "follow-up" nurse.

This combination, a competent school physician and a trained school nurse, would go far towards solving the needy child problem, from the health official's viewpoint. Both are essential. The physician alone is competent to decide questions of diagnosis and to direct methods of treatment.

The school nurse, under his guidance, can supervise and carry out his directions. Further, she can often do real missionary service in these cases. Health inspection of the public schools is really the best friend of the needy child, as well as of its father and mother. Wherever this plan has been tried, statistics prove overwhelmingly the advantage to this class of the community and to the community as a whole.

Not only does the school nurse see that the needy child has the proper medical or surgical care, but she is apt to be in touch with organizations of various kinds for the relief of such families and through her agency food and clothing may also be provided when necessary. She detects bad housing conditions, as well as unsanitary, and in a tactful way she may frequently shield the child from the effects of neglect or abuse at home.

The Vermont State Conference of Charities and Correction, I believe, can solve the needy child problem in Vermont in no more satisfactory way than by urging health inspection in all our schools.

In discussing the needy child from the Board of Health standpoint, I venture to call your attention to a still darker phase of the subject, viz, the liability of these children, as well as *all* children, to contract venereal disease. Let me quote again from communications that come to the State Board of Health. This is from a health officer:

"A short time ago a complaint came to me that there was a family in our town that had sores on them that did not heal. I investigated the matter and found three children with their feet and legs covered with nasty sores. * * * The mother said they got the trouble from their cousins. * * * I went there and found the same thing.

"I called Dr. _____ of _____ and he visited both families. * * * The mother of one of the children had a suspicious sore on her nose and the father had several ulcers on one hand."

The following is from a wife and mother. Much of this letter is unfit for recital. All of it shows a grade of depravity rarely found.

"I write in the interests of public and private health and the general well being of every one. My husband, _____ of _____, has been suffering from syphilis for more than nine months, and up to August 1st he had delusively told me that physicians' diagnosis was 'canker' and that it was not infectious * * * that he had raw throat, mouth and lips. * * * We have two small children, boy and girl. * * * He drinks out of roadside cups; bites off plugs of tobacco from his fellow workmen, smokes their pipes 'to pepper them,' as he calls it. He gets more or less of this mattery saliva on anything he gets near his mouth. I am his wife and I know what I am talking about. * * * He is going to pick apples to sell for cider at the cider mill. At home (his mother's) who, I also think, has the same

malady, they make butter for sale; also pare and dry apples for the market. Two children and two adults drink from a common dipper, as well as eat up apples and other foods that my husband has partly eaten. (His mouth and tongue are so sore that he can't eat much.) These children, if they get this malady, will be apt to transmit it to the other children in school." Etc.

This graphic description of what has sometimes been called the black plague reveals a situation that I feel sure is rather unusual, but one that is occasionally seen in rural Vermont.

Finally, here is a letter from a physician and health officer, who gives unquotable details and asks for advice as to what to do in the case of a girl coming from a neighboring town to a school in his town. Her parents, brothers and sisters, have gonorrhoea and she is undoubtedly infected.

These diseases, especially gonorrhoea, are found in Vermont schools every year, and occasionally it has been necessary to close a school because of its occurrence among the pupils.

The Legislature of 1915 enacted a law entitled, "An Act for the Prevention of Venereal Diseases." Section 4 of that Act provided that the State Board of Health "shall make and enforce such rules and regulations for the quarantining and treatment of cases of gonorrhoea and syphilis reported to it as may be deemed necessary for the protection of the public."

I think you can all appreciate the practical difficulty of enforcing any regulations for the quarantining of these cases or for their proper treatment, without some institution in the state to which such cases may be taken.

An Act of the previous Legislature required the Board to provide at the expense of the state, for purposes of diagnosis, facilities for the free examination of persons suspected of having either of these diseases.

During the past year (1916) of a great number of bacteriological examinations made for the purpose of diagnosing these two diseases, 758 were positive. This will give you an inadequate idea of the prevalence of these diseases in our state. Childhood is not exempt from either, and particularly needy childhood. Of the total number found in the state, 20 cases of syphilis and 92 cases of gonorrhoea were under 20 years. There is good reason for thinking that all these figures, representing only cases applying for treatment, are far short of the truth.

The practical care and prevention of these diseases is perhaps the most baffling question of preventive medicine at the present time.

The Act of 1915 evidently contemplated that treatment should in some way be provided for these cases. Such treatment should undoubtedly be made available for them. The laws will have to be made more specific, however, as to ways and means, before much can be accomplished. Mean-

time education promises the best results. The public generally must be taught all about these diseases, as they have been about tuberculosis.

This education must reach the grown-ups. Segregation and hospital care, desirable theoretically, are yet impracticable.

In spite of the rather black picture I have drawn of the "needy child" in our state, from the Board of Health standpoint, the outlook for childhood as a whole in Vermont was never so good as today. More children are surviving the oldtime perils of youth, to reach adult life, than ever before. The needy children share these benefits.

The suggestions which I would urge on this organization, for still further safeguarding childhood, may be summarized as follows:

Our Vermont towns should provide isolation hospitals, which are *real* hospitals, individually or collectively.

We should provide sanatorium care for advanced cases of tuberculosis.

The schools may be made a chief factor in saving the needy child, physically; first, by providing outdoor schools for the tuberculous or those predisposed to that disease; and second, by making health inspection universal.

Finally, an educational campaign, in regard to the nature and prevention of venereal diseases, should be carried on—similar to the campaign now being waged against tuberculosis.

This Charities and Correction organization does well to bring this problem of the needy child into prominence. The State Board of Health will co-operate with you in your work, as far as the law allows.

ALCOHOL FROM A MEDICAL STANDPOINT

BY CHARLES F. DALTON, M. D., SECRETARY VERMONT STATE
BOARD OF HEALTH

The question as to the proper use of alcohol and alcoholic drinks has been the subject of discussion for many generations. There was a time when it would have been considered bad manners to allow the minister to conclude his pastoral call without offering him a glass of wine. The flowing bowl has been extolled in poetry and song for so many years that a sort of glamour is popularly attached to the taking of liquor. It has also been looked upon as the seal of friendship, the test of loyalty, and as an oblation to the gods in dedication and christening. This popular worship of Bacchus has taken such a firm hold on the public generally that for one to openly speak against the use of alcohol is at once to place him in the class of fanatics. At least this has been the situation to within a very few

years, and there are now, no doubt, a possible majority of people who think a Board of Health entirely out of its province when it identifies itself with the opponents of the liquor trade. The medical facts as to the effects of alcohol on public health leave no doubt, however, as to the propriety of public health officials attacking a habit which is now known to be either a direct or contributory cause in the shortening of life and the production of disease.

As to the moral issue on this subject we have nothing to say. That is for the church. Neither do we deal directly with the economic side of the question. That is for charitable institutions and business men. Our part in the prevention of the promiscuous sale of alcoholic liquors is confined wholly to the side of public health and the prevention of disease. We approach this subject in the same manner as we attempt to prevent the illegal sale of poisons, or the spread of harmful bacteria. Medical knowledge now shows that the use of alcohol is detrimental to human life and health, and it therefore becomes a public health question.

No one will deny that the *excessive* use of alcohol is detrimental to health. If one should try to delude himself into thinking otherwise a single look at some poor "down and out" drunkard should convince him of his mistake. There is no argument on that side of the question. Alcohol will ruin and kill if taken in sufficient doses.

But is there danger to health and life in what is known as the "temperate use" of alcoholic liquors, the so-called "social-moderation?" Also is there need of the family bottle which is called upon for so many emergencies, imaginary or real? These questions are now being studied more than ever before, and the personal bias which formerly influenced the investigators is being replaced by a spirit of true scientific research.

Prof. Irving Fisher of Yale and Dr. Eugene Lyman Fisk, Director of the Life Extension Institute, have published a book entitled "How to Live." This work is a compilation of the collective thought of many prominent scientists and is generally recognized as the latest authority on the various subjects with which it deals. In regard to alcohol we read in this book:

"If it could be shown that small doses of alcohol produce no ascertainable ill effects upon the human organism, the higher mortality among the moderate drinkers as compared to total abstainers might have to be explained as due to some as yet unrecognized cause or causes other than alcohol. But if laboratory and clinical evidence shows that alcohol in so-called moderate quantities (social moderation) produces definite ill effects, such as lowering the resistance to disease, increasing the liability to accident and interfering with the efficiency of mind and body and thus lessening the chances for success in life, to say nothing of any toxic degenerative effect upon liver, kidneys, brain and other organs, the excess mortality that unquestionably obtains among moderate drinkers as compared to total abstainers must be ascribed chiefly to alcohol."

These effects are now fully shown by laboratory workers and more than this, the work is being repeated and amplified.

Another authority from which I shall quote is the 1914 Yearbook of the United States Brewers Association, which gives an extended translation and review of a book entitled "The Alcohol Question from a Medical Standpoint," by Ulrik Quensel, Professor of Pathology and General Hygiene of the University of Upsala, Sweden. On the subject of the ability to work as influenced by moderate doses of alcohol Professor Quensel says:

"The former widely disseminated conception that alcohol administered in small or moderate doses makes the process of thought easier and generally stimulates intellectual work has not shown itself based upon objective facts. The experiments, on the contrary, indicate that ability to work—so far as certain investigated forms of work are concerned—is in large measure reduced also through the use of comparatively small doses, although it occasionally has been established that the deterioration was preceded by a quickly passing stage during which the work was made easier. Experience has furthermore shown that it is the difficult and responsible work which suffers most from the influence of alcohol; endurance, energy, concentration, suffer in the first place, while the ability to execute an already familiar piece of work or purely mechanical occupations are limited in far less noticeable degree.

"The nature of this influence of alcohol may briefly be said to be that alcohol reduces the ability to do the work requiring logical thought. It is of interest that several inquiries among authors and artists show that alcohol in general cannot be regarded as contributing to a heightening of the creative power.

"Experiments undertaken to illustrate the question, in what manner a continued daily repeated use of alcohol works, have shown that the ability to work under such conditions is certainly reduced.

"Kraepelin and his followers have established that alcohol in comparatively small doses has a disadvantageous effect upon certain known expressions of the psychic life, and the sum of the results may be comprehended in the general sentence that *work and alcohol do not belong together*, especially when the work demands wide-awakeness, attention, exactness and endurance."

It appears that the higher faculties of the mind are the first to be disturbed. The "normal balance of the brain" is lost, including "the finer grades of judgment, reflection, observation and attention-faculties which have been largely acquired through education, and which constitute the elements of the restraint and prudence which man usually imposes on his actions." (Sollmann.)

Along with this psychic disturbance there is a dulling of the nervous system. This feature has been carefully studied by experiments on groups of students who were very moderate users of alcohol. The reflexes of the

body, which are the unconscious motions designed for protection against accident, were found to be markedly affected.

"The greatest effect was found in the reflexes. In the patella reflex, alcohol increased the latent time 10 per cent, while it decreased the amount of quadriceps thickening 46 per cent. In the protective lid reflex it increased the latent time 7 per cent while it decreased the extent of the lid movement 19 per cent. It increased the latent time of the eye reactions 5 per cent and that of speech reactions 3 per cent. Memory and the free associations were only slightly affected. Sensitivity to faradic stimulation decreased 14 per cent after alcohol. The number of finger movements decreased 9 per cent and the velocity of the eye movements decreased 11 per cent." (Journal American Medical Association, March 4, 1916.)

These nervous reflexes by which the body automatically recoils from injury being impaired, it naturally follows that accidents are more frequent in users of alcohol than in abstainers. This fact has been shown to be true. During my term as health officer of Burlington, I had occasion to order the removal of a number of bodies of persons dead from accidental or violent causes. Almost without exception alcohol was concerned in the causation of the accident.

Not only does alcohol diminish the outward protective forces of the body; it also has a detrimental effect on the natural protection of the body against infectious diseases. It has long been known by medical men that whenever injurious germs are received into the body the white cells of the blood begin a war of extermination on the invaders, and by this means we are kept from developing the disease. In some diseases, as in typhoid fever, a substance is formed in the blood which gives what is known as an immunity or protection against that particular ailment.

At the University of Munich this subject has been thoroughly studied and it has been found that the action of the blood on typhoid germs is less pronounced in those accustomed to daily amounts of alcohol than in abstainers. Another observer has shown that protective inoculation against cholera failed to take effect in persons who consumed alcohol daily in fairly large quantities. A recent report of the Pasteur Institute in Budapest states that rabies or hydrophobia remain active in alcoholics in spite of the usual inoculation treatment.

There is also a direct effect upon the various organs of the body, alcohol acting as an irritant to these delicate tissues. Two main effects are seen—one, the storing up of fat in places where it does not belong, and the other, in the gradual hardening of the organs themselves. In either of these conditions the body is prevented from doing its usual work and disease occurs. The principal organs affected by the use of alcohol, even in small doses, are the liver, kidneys, heart and blood vessels.

The changes in the kidneys lead to Brights disease, which if it does not kill outright, makes a semi-invalid of the patient. The heart becomes fatty, that is, the good muscle which enables the heart to keep pumping

blood for the nourishment of the body is replaced by fat, and thus weakened, may suddenly give up its work when some extra strain occurs, and we say the person has died of heart disease. The changes in the blood vessels lead to apoplexy, generally known as paralytic shock. Thus many deaths which are put down as being due to some of these causes are really due to the moderate use of alcohol if the truth were known.

The result of all this injury to important organs is that the "powers of resistance" of the body are markedly lowered and when the alcoholic becomes affected with disease of almost any kind he has no vitality left to throw it off. This explains why when a drunkard comes down with pneumonia, his coffin may usually be ordered at once, for his chances of recovery are very poor. It also explains the reason why operations are dangerous in persons who are accustomed to take alcoholic drinks regularly.

One of the popular uses of the family bottle is to furnish a drink of liquor when one is going out in the cold, the idea being that the alcohol helps to keep heat in the body. This is a case where the drug actually deceives the one who uses it. What really happens is that an extra amount of blood is sent to the skin (shown by the flushing of the face), thereby causing a sensation of warmth while in fact the blood is being cooled more rapidly than normally and the inside temperature of the body is reduced. Alcohol taken in this way robs the body of its natural defence against excessive cold, and makes the person more susceptible to cold than ever. I have personally had occasion to view the bodies of several men overcome by cold on their way home at night and frozen to death. But in every case the man was drunk at the time of the exposure.

On this point the Journal of the American Medical Association says:

"The dilatation of the vessels of the skin causes a sensation of warmth, because the increased blood supply increases the temperature. This leads to a greater loss of heat than normally, and the body temperature may actually fall, even while one feels warmer, because the increased heat loss is not compensated for by increased heat formation. For this reason the practice of taking alcohol before going out in extremely cold weather is dangerous, and severe exposure has often proved fatal under such circumstances."

Still another excuse for having a bottle of some liquor in the house is its reputed usefulness in case of coming down with a cold or fever. One of the recent medical textbooks questions the advisability of such treatment stating that it is impossible to tell where its action will be useful and where it will begin to be detrimental. There are certainly other and better remedies which can be installed in the household medicine chest, for use in the minor ailments, and inquiry among physicians demonstrates that they are less and less using alcoholics in the treatment of disease.

The life insurance companies have figured out the effect of alcohol on life and health and reduced the problem to actual dollars and cents. Their

study has brought about a radical change in the attitude of these companies toward users of alcohol. Professor Quensel, previously quoted, says:

"That the abuse of alcohol shortens the duration of life is an experience that has long been known and acknowledged. In more recent times there has been ascribed not only to the abuse of alcohol, but also to its moderate use, an effect in the direction of shortening life. That this conception conflicts with the previously accepted view is shown, among other things, by the fact that as late as in 1840 the great life insurance companies in England demanded an extra premium of 10 per cent from absolutists on account of the supposedly increased risk. Now, on the other hand, the opposite is the rule in certain companies, and nothing shows more clearly how searchingly in the later days the conception of the influence of alcohol—thanks to the temperance movement—has become changed and improved."

At a recent meeting of the Association of Life Insurance Medical Directors of America an exhaustive paper on this subject was presented, giving results of the study of the alcohol question by various companies over a long series of years. One or two examples of the results will be sufficient to show the general trend of the findings.

Life insurance business is conducted upon scientific calculation as to the number of deaths which may be expected to occur within certain limits of time and conditions. The Mutual Life Insurance Company of New York presents a table showing the actual deaths as compared with expected deaths as follows:

Deaths among total abstainers as compared with expected deaths, 53.4 per cent; temperate (occasional, but not daily users), 64.1 per cent; moderate (steady, free though not excessive users), 72.7 per cent; thus showing nearly 20 per cent more deaths among moderate users of alcohol than among total abstainers, and 11 per cent more than among those called temperate users.

The Security Mutual Life Insurance Company shows the death loss among abstainers to be 53.1 per cent; among beer or wine drinkers, 54.3 per cent; and among whiskey drinkers and a few large users of beer or wine, 66.8 per cent. (Medical Record, October 30, 1915.)

The most unfortunate and pitiable thing about this whole matter is the fact that not only are the individuals themselves affected, but the children of users of alcohol are made to bear the burden of the parents' indulgence. Quotations from three different sources illustrate the medical opinion on this subject:

The large child mortality in the families of alcoholics, which has often been established, may of course be conditioned by the congenital weakness of the children, but may find its explanation in the outward circumstance just mentioned. But, in addition, insufficient and unsuitable food for the children and lack of proper care are unquestionably of importance in this direction. As such conditions frequently appear in the families of alco-

holics, it seems evident to me that the indirect influences which accompany alcoholism are important causative elements also in the demonstrated child mortality in the families of alcoholics. (Quensel, *Brewers Yearbook*.)

The influence of alcoholism in the parent on the offspring is a question not yet definitely answered. It is certain that the nutrition and resisting power of the offspring are greatly impaired by it. The mortality amongst the children of alcoholics is very high. It is also certain that psychic degeneracy—epilepsy, idiocy, predisposition to crime and to the abuse of alcohol—are extremely common in them. (Sollman.)

The association of parental alcoholism and degeneration or pathologic conditions in the offspring have long been recognized. It is known that epilepsy is more frequent in the offspring of alcoholics than of abstainers; a recent report moreover calls attention to the fact that alcoholic intoxication in the father at the time of impregnation may result in an epileptic child even when there is but a single indulgence in alcohol. (*Journal American Medical Association*, March 6, 1915.)

THE NEED OF LOCAL CONTROL OF TUBERCULOUS PATIENTS

BY DR. CHARLES J. HATFIELD, EXECUTIVE SECRETARY, NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS

There are two reasons why I will not take much of your time, one on account of the temperature, because I don't think any of us enjoy being closed up on a hot afternoon, and the other is because you have had here for about 30 years a very efficient State Board of Health, a State Board of Health that has stood out in its efficiency from many other states of the Union, and for that reason every health official in the state is better educated on the subject of tuberculosis than the average in the states which we would visit.

In the organization of the National Association, and in the early days of that organization, twelve years ago, one of the most prominent figures was your former secretary of the State Board of Health, Dr. Holton.

When we begin to talk about the need of local control of tuberculosis we quickly realize that we are talking right down to the ground rock. We know that tuberculosis is a national public health problem, and then of course, as the nation is made up of units, we have not only the state, and county, but the local problem, and wherever we go we have to acknowledge that the tuberculous individual is the ground rock consideration. Right along with that are the individuals who must be prevented

from contracting tuberculosis, so that when we come to the fundamental work in the control of tuberculosis it must be a local work, and our work will only be complete, and the whole course of the work will only draw us out of this trouble of tuberculosis as our various local units develop their efficiency to the fullest point and take care of its diseased individuals and the prevention of the spread of the disease to normal individuals. Therefore, to each member of the State Board of Health a question of this kind is of vital importance and the responsibility resting upon that individual head is most direct and important.

Throughout the United States, during the last 12 years, there has been developed a certain system of work against tuberculosis. It started with one conception,—the early care or the incipient case,—and it has grown and developed until at the time of the Congress of 1908 the emphasis was laid on the care of the advanced case, and that is continuing, but they are going beyond that and saying that the emphasis should be more particularly upon the care of children, and co-incident conditions, the underlying cause of tuberculosis, so that our system has been a gradual growth and development, and for that reason it is of particular interest. People from Vermont, New York, Massachusetts, Colorado, Wisconsin, California and Illinois have had a share in it, and to-day there is some light and it gives us a broad view when we say a word or two about it.

The function of the National Association is to gather from all sources the experiments of work that is done, the methods by which it is done, and then sift out from those reports and methods those points that are of interest and significance and pass them on to the other communities where perhaps they have not tried them. Another function is to see that all existing organizations are brought together and co-ordinated and standardized, and enabled, by conferences and meetings, to exchange ideas, and so to set certain standards that will obtain throughout the country. The National Association is supposed to be the combining point of these various state organizations.

The state association, which is a unit in the National Association, has absolute domain over its own territory. The National Association has not anything to do with the rights of state associations. The National Association is interested in seeing that an organization is properly launched and will develop the greatest possible usefulness, and in seeing that every state has an organization that is going to be responsible for all the territory in that state. Wherever there is an active, broad-minded set of people, it is desirable that there should be some unified power in the state whereby these examples shall be stimulated, and the place in which there is no work being done shall be stimulated to do work, and so take care of the tuberculous individuals and bring the whole level of control up to a proper standard. We do not live to ourselves alone in this country or any country, because there is constant travel between our towns and villages, so that we may here in Burlington have a magnificent system of control, when, in

the outside towns people may come and bring infection in so great a quantity that our calculations here in Burlington will be generally thrown out. There are county organizations, but after you get your state organizations the internal organizations should be left to the particular needs of that particular state and there should be no rigid or routine advice given relative to it. In every state there should be some distinct supervision for each locality in that state.

From the standpoint of public health we find that you have your public health officers all through the state, and I hope you will have full time men. It is a part of the duty of each officer to see that this matter of the control of tuberculosis is recognized.

What is the procedure in local control of tuberculosis? I think the first thing in any locality is to make sure that we have a broad view of our responsibilities. We have to have, in order to do our little piece of work well or to the best advantage, an intelligence that is going to extend outside of our own territory and be quick to apprehend good points in neighboring localities, and quick to see the relations of our particular community with neighboring communities, and quick to see the importance of co-operation with men who are doing the same work in their communities.

When we come to handle the patients there is one conception that we have to have in addition to that preliminary conception. The statement has been made that infection with tuberculosis is universal and that we probably none of us escape, although that statement is not as true to-day as it might have been some years ago, because the decline of tuberculosis would make that less true. That statement in any community is a very valuable one in that it should induce every country looking for the control of tuberculosis to say that all persons who present signs of tuberculosis must be handled as if they were tuberculous until they are proven not to have tuberculosis. It means that in our responsibilities as public health officials we have to watch out for a suspicion of this disease and be quick to follow up those persons who are tagged by us as suspicious.

In laying out a program for our community, what are the points that we want shall be observed? The first would be the matter of all the enabling laws. In Vermont you have had from the State Department of Health the laws that give you a considerable amount of power and give to you also the means of taking care of a number of cases of tuberculosis, as I conceive it, if you choose to do so. But the general point is that you should examine the laws of the state, and know whatever laws or ordinances you have that apply to your locality, and see how they size up to what you need in the way of taking care of the patients and preventing the spread of the disease to healthy individuals. The first law that is of greatest importance, and really the only one I want to speak of, is the law requiring the registration of tuberculosis in the state. If the experience in other states is similar to yours, I venture to say that law is not very closely observed because there are very few localities where the reports of deaths

are very far short of the registration. You cannot take care of tuberculous patients, or prevent the spread, unless you know where to find your case. I think, in passing these laws, and thinking about the enforcement of the law requiring registration of tuberculous patients, we should realize that doctors are abused. We ask a hard-working doctor to fill out a fairly complete report and hand it to the proper official at his own expense. I believe, in connection with the state law, that encouragement should be given to the doctors to report, as well as a penalty attached to a non-report. It seems to me that we should take the doctor's position and think of the possibility of paying him a sufficient amount to make it an inducement to him to report cases. As a practical measure that sort of bribery is a good expense for a public health association, especially in introducing a measure of this kind, which has, from its different aspects, certain things attached to it. I don't bring up that matter of a fee as a recommendation, but it is a consideration of a side which we should take into our councils, and that is the attitude of the hard-worked doctor who is required to report. All those reports must be the secret property of health boards because they cannot be open to the public in any way, for reasons that are perfectly obvious.

Another thing is the following up of such reports by the Board of Health, which should be done with tact and care so as not to infringe upon the rights of the doctor or patient, but our prime object is to make sure that we are in control of that principal focus of infection. We have now the diseased persons and under responsible parties can keep after them. With the registration the next duty that the health officer has is to make sure that disinfection, after any removal, whether a change of residence or death, is promptly and thoroughly done.

The next thing is to view our field with reference to just what we have in the way of cases. That must be provided for. That is to say, to consider the adequate provision for the tuberculosis case in our particular locality. The first consideration under that is the matter of provision for advanced cases. That is still a matter of primary and particular importance. We know that the advance cases give off, in actual number, far greater quantities of germs than do the incipient cases. The hospital cases give off a vastly greater number of germs than the early cases, so that we are placing the emphasis on them first, from the standpoint of care. What provision have you for the care of advanced cases, for which you are responsible? If our conception of each locality being responsible for its own people,—the answer to that response, the solution of the difficulty works out differently in different localities. In thickly settled localities, you have a good deal of satisfaction in securing county hospitals for advanced cases. The accommodations for advanced cases must be near the home and family. A case that is going to die should not be removed for a distance and then placed apart from ordinary surroundings simply for the sake of segregation. We should try and take care of these cases somewhere near

at hand. In thickly settled communities, county hospitals answer the needs. In a state like Vermont it is quite conceivable that there might be a series of three or four hospitals, where advanced cases could go and be maintained, so as to cover the territory of the state; but there is one other consideration I want to point out. You have throughout Vermont a number of general hospitals. Some of those general hospitals are not very large, while others are very good size, and some are supported by state funds. Why isn't it possible for us to take up this conception of urging our general hospitals to establish tuberculosis wards, one ward for men and one for women? We don't go into as great an expense,—a lot of money for new buildings. We don't have to create a new organization for the physical maintenance of the institution. We have to ask that certain space be set aside or created for this particular class of patients and then that we in some way establish the tuberculosis fund to support those cases, and if we do that there are a good many advantages to us involved. It could be done with entire safety to the rest of the hospital, if properly conducted.

The tuberculosis ward can be carried on with perfect ease in a building used as a general hospital but usually there is a more or less separate part of the hospital set aside. When it is done it should answer our local difficulties. We keep our patients near friends and relatives and don't increase existing institutions. We ask that the general hospitals make provision for this class of patients, for which they can care perfectly well and for which payment can be made through the tuberculosis workings. We have the objection of the hospital trustees to look for. They say they cannot keep chronic cases, and it also runs up the mortality rate, which is not a good thing for a hospital, but their objections are not half as strong as the advantages of such a plan. I wish you would think of that provision for advanced cases.

You have at Pittsford one of the best built, best equipped, and I believe best run institutions in the country. I was absolutely delighted with it. I don't know of any single unit in this country that seems to be quite so complete,—well located, beautifully built, well planned, and well run. It is surprising to know that the hospital there is not filled with incipient cases. You have lots of incipient cases in Vermont, and yet a hospital with 40 beds is not filled, and it is not a matter of money, for an incipient case, when discovered, can be taken care of. Your responsibilities for your local communities should be promptly looked after. I know the doctors stand in the way to a certain extent, and the trouble with that is often diagnosis. It is up to you, as the resident health authorities for each of these local communities, to make sure that where an incipient case is detected and where you know from your experience it cannot be properly cared for, that that case is sent to your most excellent sanitarium.

When we have talked of the hospital provision for advanced cases and sanitarium provision for advanced cases, we have covered a good deal of ground. We ought to have in each community some sort of hospital or

clinic equipment. That does not mean that each village should have its own dispensary, but each locality should have some dispensary to which they could send patients for diagnosis, for directions,—where to go so as to most quickly get well, and also as a field point if the patient is suitable for home treatment,—and if the home is such that the patient can get the proper rest and outdoor air, and proper medical supervision. Through that dispensary the home treatment may be prescribed and the patient kept there. The dispensary, as a place of refuge, should also be taken into account as a part of your local equipment.

In connection with this is the matter of the nurse, and you should see that the dispensary to which you send your patients should have that sort of an equipment, and just a word as to the nurse. The visiting nurse,—with the social training, the medical training first, and then social training,—the training in living conditions, I believe is today the most efficient single factor in the local control of tuberculosis that we can have. It is lots better than those who talk and those who distribute literature, it is better than the doctor who sees the case a few minutes in the home. The nurse not only follows up the individual case into the home and sees that the cases are properly cared for, and sees the other members of the family and the condition of the house, but she inquires into the matter of the family income to see if it is sufficient to support that patient and give him the care which he needs. It is her business to look over the family as a whole, to take out those members of it that are at all suspicious in appearance or history. They give very intimate histories to the nurse who comes in that way, and she brings back those histories to the dispensaries. As an agency, there is nothing to compare with the visiting nurse.

The open air school you should also think of. An open air school, in the care of children, is a very important matter, and I thoroughly believe it will be but a very few years before every one of our school buildings will have one or more open air rooms.

The fourth thing that you have to consider in your community is the most important of all, and that is this matter of the prevention of the spread of disease. We have been talking, for the most part, of the care of actual patients, but prevention is of far more importance. You have, in your particular locality, to see that your particular people are educated. Of course you will have a lot of people co-operating with you, and that education consists, first, of talks, which is the least valuable. Second, it might consist of an exhibit—the intimate school exhibits that are taken in small groups—and then an interesting illustrated talk given on tuberculosis, or you can work up a plan for a motion picture attraction, because that today is a very important educational agency, and then the matter of the distribution of literature. Your state department of health has most excellent literature which can be furnished. In connection with your schools you can work in a certain amount of education in the actual curriculum by having a lecture by yourself or the state department of health.

You have the responsibility of providing that sort of thing for your particular community. You have to educate in order to prevent the disease. The second is the care of the children. Any one of us could talk for an hour on the care of children and importance of the prevention of tuberculosis. During the last few years it has assumed such dimensions that some people are ready to throw aside every other preventive measure and center all their attentions on the children. You have competent medical inspection for the most part of Vermont. You want to tell those children before they come to school. In the city of Cleveland, in connection with the tuberculosis work, they are giving pre-natal care to the children who will be exposed to tuberculosis as soon as they are born.

Then these underlying causes, the housing and bad working conditions, all must be carefully considered.

The last point is the care of the food supply, for which you are responsible. The most important food supply in this connection is the milk supply in your particular territory. It should be free from tuberculosis, and if it is not certified milk it should be pasteurized. I believe that is in accordance with the latest recommendations of the Milk Commission. If all these things are carried out, what can we hope for? I don't know whether any of you were at Albany last year at the time of that sectional conference and heard the address by Dr. Heizer, who was for ten years health officer of Manila, and who told the story there of Australia. He was tremendously interested to see how they had taken a city and investigated it and every person entering that area also. All that were found suspicious were tested and followed up, and those that were found to be tuberculous were sent to the sanitarium or left in their homes, and the moment they stopped the proper measures that would protect their surroundings they were sent to a hospital or sanitarium. The milk and meat supplies were attended to, and Dr. Heizer states that the authorities there are satisfied that they have this disease under control. The whole thing is so hopeful that within the last few months the Metropolitan Life Insurance Company made an offer of \$100,000 to conduct a similar experiment in this country, preferably in Massachusetts or New York State, for the reason that in both of those states the various localities have been worked over for a long time, from the point of view of public health, and a large and more extensive staff of the public health officials would be at the service of those conducting the experiment. That is merely mentioned as a hint to you as to the hopefulness of taking into your hands the control of your own locality and seeing what you can do with it.

Upon the public health authorities of this country there is resting a bigger responsibility and far greater opportunity than ever before. The group control of the health of the country is going by leaps and bounds. The biggest feature of any medical work lies in some phase of the public health movement. You gentlemen have the opening up of the opportunities in your own towns.

METHODS OF CONDUCTING A TUBERCULOSIS CAMPAIGN

BY HAROLD W. SLOCUM, TUBERCULOSIS LECTURER,
VERMONT STATE BOARD OF HEALTH

Instead of discussing methods of conducting a tuberculosis campaign in general, I am going to confine myself to methods of conducting a tuberculosis campaign in Vermont. The first step is for us to inventory the tools that already exist in the state for the prevention of this disease; in order that before endeavoring to add more we may be sure that we are making the most of those that are already at hand. First, we have a sanatorium for incipient cases of tuberculosis, which in equipment and management, ranks with the best sanatoria in the country. The excellent location makes possible, at a minimum expense, further expansion of this plant, if such should be found desirable. As a supplement to this sanatorium the legislature has appropriated the sum of \$10,000 annually to be used by the Governor to pay the expenses of patients who need the care but have no money. In addition to this, the Red Cross Society of the state has expended something like \$600 annually from the proceeds of Red Cross Christmas seals to purchase clothing and other necessities for indigent patients at the sanatorium.

The State Board of Health has an annual appropriation of \$2000 for educational work against the spread of this disease. For this purpose, the Board has invested in a motion picture outfit, which is sent about the state accompanied by a lecturer, and when properly advertised attracts large audiences. The Board has also a law requiring physicians to report to its office all cases of tuberculosis that come under their supervision. The records are kept for statistical purposes and the Board of Health sends to all cases recorded literature telling them how they should live, so as to best care for themselves and protect others from infection. In addition to this we have laws prohibiting spitting on sidewalks and in public places; laws in regard to the care of cows and the handling of milk and other sanitary requirements.

The spread of tuberculosis has often been compared to the sowing of seeds broadcast. Where the seeds, which are the bacilli of tuberculosis, find fertile soil they grow; where the soil is not fertile they die. In one respect this analogy does not hold true, for one may sow seeds on a barren place every day and as long as the place is barren they will not grow; but if the seeds of tuberculosis are sowed time after time in the most sterile soil they will, in most cases, finally grow. In other words, a robust, healthy person, if he lives in conditions that constantly bring him in contact with the bacilli of this disease, nine times out of ten will finally become infected. With this comparison in mind, it follows that a campaign against tuberculosis must have two general purposes: First, to prevent, as much as possible, the scattering of the seeds or bacilli of tuberculosis; and second, to have no fertile soil in which the seed may grow.

The first part, to prevent the scattering of the bacilli, takes us immediately to the unfortunate patient with tuberculosis in the open or infectious stage. If proper precautions are taken, and taken all of the time, this person is not a menace to the health of others, especially to those living in the same family, but the fact is that, in a vast number of cases, these precautions are not constantly taken.

Now, a great many authorities will tell you that the thing to do is to put all of these patients in a tuberculosis hospital, where they will receive every help toward recovery and at the same time will not be a menace to the health of others. They bid us observe a typical example of tuberculosis in a home: Mr. and Mrs. X, with three children, aged ten, seven and four. Mr. X is a laborer and the family, as a great majority of families do, live comfortably but save little. Mr. X contracts tuberculosis and finally is no longer able to go to work. Upon Mrs. X rests the responsibility of providing for the family and for a sick man besides. Their little savings are soon used up and either they move to cheaper, crowded quarters or, if they live in the country, in the winter, they try to heat only one or two rooms. While Mrs. X is away at work the children and Mr. X live, cook and eat in one room, and usually because it is the warmest room Mr. X sleeps there nights. He is very weak, they have not an abundance of clothes, and fuel is scarce, therefore in cold weather the windows are never opened. Mr. X coughs and raises sputum, which he deposits in the wood box or often in the corner of the room. As he grows weaker, he becomes more and more fond of his children, and wants to have them near him that he may fondle them. After a few years of this life he dies and the worn-out wife either succumbs herself and the children are orphans (nearly half the children in our orphan asylums today are there because this disease has devoured all of the family savings and the parents themselves) or the wife sets herself to the task of providing for these children until they are old enough to take care of themselves. But, saddest of all, when that time finally comes, these children, instead of caring for themselves and their mother, develop tuberculosis from the infection received while their father still lived. This is a common story acted, with some changes of details, hundreds of times every year right here in this beautiful State of Vermont. The widespread belief that tuberculosis is hereditary is but a witness to its prevalence.

Now, gentlemen, if Mr. X had gone to a tuberculosis hospital before the disease developed into the open stage, whether he lived or died, Mrs. X would have been able to bring her children up to healthy manhood and womanhood. But in Vermont we have no free tuberculosis dispensaries, with forces of nurses to discover these cases. Our population is, for the most part, so scattered that it would be impractical to maintain such dispensaries, and, lastly, we have no hospital for advanced cases to put them into if we found them; and about 300 die from tuberculosis in Vermont every year.

However, let us look at the tools we have. We have a law requiring that physicians report every case of tuberculosis to the State Board of Health. These reports are confidential and, therefore, it is no betrayal of confidence for the reporting physician to answer questions in regard to the number of children in the family of the patient, their ages, the economic conditions, and the ability of protecting others from infection. This machinery exists; all that is needed is to enlarge its usefulness.

The State Board of Health sends literature to the patients, and for people of some means and education that may be sufficient, but for the patient without means, who sees naught ahead but hopeless despair for himself and poverty for his children, the literature is not enough, even if the receiver could read and apply it. Here is a place where an Association for the Prevention of Tuberculosis can prove itself a valuable ally to the State Board of Health. This association, with its main office at the office of the State Board, is at the fount of information and, with local committees made up of representative men and women in every town in the state, it is in contact with every section. When there is a case, where the doctor's report indicates that the sending of literature is not enough, the record is turned over to the representative of the association; and this organization, in co-operation with the physician, sees to it that not only sputum cups and other sanitary articles are furnished, but, if need be, warm clothing, wholesome food, for these are needed more than anything else in the home where consumption exists; and even, if necessary, more sanitary quarters. In short, the patient is shown that others are taking pains for his welfare and, therefore, is much more willing to take pains himself to protect others.

You cannot get all infectious cases of tuberculosis in a hospital, and if you could you cannot keep them all there unless you make the hospital into a prison, but you can awaken in most patients an interest in protecting others by showing an interest in caring for them. We can persuade him to live more by himself; to keep the children at a distance; to spit and cough only in proper receptacles. We can see that the children are properly fed; that they have plenty of fresh air, both day and night; and that the house is clean. In time I hope that the association can afford to employ a visiting nurse to help in this important work.

I realize that there are patients who will not respond to any kind of help, but these same patients are impossible inmates of a hospital, where they must stay for perhaps years. The only solution that I have ever heard offered for the patient that refuses to take any precautions is prison bars. Aside from these, the patient who will obey the rules in a sanatorium or hospital will also, if tactfully handled, be careful at home. Far be it from me to detract from the importance of a tuberculosis hospital for advanced cases. Vermont certainly should have one or more, but I want to emphasize that much can be done without them.

There are two other very important uses that an auxiliary association of the State Board of Health can make of the system of registration. Per-

haps when Mr. X first called in the doctor he was living in comfortable, sanitary quarters, and so the doctor reported to the State Board. Tuberculosis is a long disease; for various reasons Mr. X may no longer call in the doctor. He sinks into the condition described before and all of the time the report card at the office of the State Board shows that the family is in comfortable circumstances, able to protect itself from infection. There are many cases of tuberculosis that drift from all medical supervision, and uninstructed and unrecorded move from house to house. What happens is that the quarters this family formerly lived in are occupied by new tenants without having been properly cleaned or disinfected. All may go well with this family until some member contracts pneumonia, scarlet fever, smallpox, measles, whooping-cough, influenza, or any disease that taxes the resistive powers of the body, then there is grave danger that while this person is recovering the germs of tuberculosis left in the house by the former occupant and never destroyed by proper precaution will be able to cause an infection.

This danger can largely be avoided if once or, much better, twice a year we make a list of the names of every living patient registered under a physician's care and send them to the respective physicians with the following questions after each name:

1. Is the patient still under your supervision?
2. Has the patient moved to a different address since your last report?
3. If so, were former quarters properly cleaned and disinfected after removal?
4. If not now under your supervision, can you give any information concerning same?

If the patient has moved and the former quarters were not properly cleaned and disinfected, the office of the Association can ask the owner to have this done, explaining the need of it. If the owner refuses to comply, then the State Board of Health can command him to do so. Proper cleaning means water, soap, and the strong right arm; it also means repapering and repainting the room formerly occupied by the patient. When the report of the death of a patient comes into the health office, this Association can see that the same is done and in addition that all furnishings, clothing, etc., are either destroyed by fire, or boiled or cleaned and left for a number of hours out-of-doors in the direct rays of the sun.

The other important task that keeping our record up to date will accomplish is that there will be fewer families with a tuberculous patient without the supervision of a physician. For if the doctor reports that the case is no longer under his care the association will locate it and, if necessary, furnish medical supervision; for without this supervision, through ignorance and carelessness, the patient will be a source of infection to all who may be brought into contact with him.

Before leaving this side of our subject, the prevention of the scattering of the bacilli, I want to mention the importance of proper care for in-

fectured children and of early diagnosis in a campaign for the prevention of tuberculosis. All information today points to childhood as the time when most of our tuberculous patients are infected, and most of this infection occurs from living with or coming in frequent contact with tuberculous patients. In the child the disease usually remains dormant to break out in the adult, and while it is dormant it can be most easily cured. Every child living in a home where there is a case of tuberculosis should be carefully examined and for those who show signs of infection there should be a preventorium, a place where they may live and study in the open air, receive plenty of wholesome food and medical supervision, so that at the end of a year or so they may return to a home which, through our efforts, is no longer a source of contagion and may grow up into healthy manhood and womanhood which, without this care, will almost certainly be denied them.

At the Pittsford sanatorium there are ample grounds for such a preventorium. The sanatorium exists for incipient cases who are under careful supervision, and a preventorium for children could be added with no risk of infection and at a minimum cost in construction and administration. A school can be conducted at the plant to enable these boys and girls to keep up in their studies and at the same time we shall give them every opportunity known to man to rid themselves from the disease which has already marked them for its prey. I trust that at the next meeting of the health officers we will be able to present a careful estimate of the number of children in our state who are in dire need of this care. If we can prove the need, I am sure that a means of establishing the open air school or preventorium will be found.

Early diagnosis is more difficult in a rural population such as ours than in a large city, but nevertheless we can do something. Tuberculosis is most prevalent among our stone cutters. With the co-operation of the employers and employees the association could open an office for a few days each year at a central place for these people. Then by distributing literature and by noon hour talks it could urge the importance of a physical examination and offer it to the employees free or at a nominal sum at our temporary quarters. To overcome the suspicion of some it would probably be necessary for us to agree to keep the results of the examination from all except the patient himself. Nevertheless we would find cases where extra care or a few months at Pittsford would prevent the development of an open infectious case. Moreover, the educational advantage of such a work would repay the expense.

In this connection I think it might be practical to enlarge our dispensary, that is to open temporary headquarters in different parts of the state, both for early diagnosis and for the examination of children who have been living in a family where there is a case of tuberculosis.

For the second half of a campaign against tuberculosis, the getting rid of the soil that is fertile for the germ to grow in, I believe that work with the children is the most necessary and the most promising. The most

necessary because tuberculosis in the adult is in a great majority of cases the result of infection during childhood; most promising because the body of a child responds more quickly to healthful conditions and its mind responds more quickly to healthful suggestions.

During eight months of the year all of the children in our state go to school and at school they learn more lessons than the three R's. Children who are accustomed to schoolrooms that are kept clean and where the air is kept fresh are not going to be willing to sleep in bedrooms that stink with the dead air of past generations. Vice versa children in dirty, ill-ventilated schoolhouses will be perfectly content to live in filth and breathe stale air at home, and thereby develop excellent soil for the germ of tuberculosis.

All the world loves to play games and I propose that we enlist every schoolroom in the state of Vermont in the game of maintaining a clean, healthy environment, out of which shall spread lessons in sanitation to the whole neighborhood. There are 100 points in this game and every school that earns 75 or more points shall receive a handsome honor certificate upon which shall be printed the number of points gained. The points shall be earned somewhat as follows:

Running water or a covered can with a faucet for drinking water, the can to be rinsed every day and scalded at least once every week, 10 counts.

Individual or paper drinking cups, or drinking fountain, 10 counts.

Wash basin and individual towels for children who take their lunches to school, 10 counts.

Floors scrubbed with hot water and soap weekly, 20 counts.

Every other week, 10 counts.

Windows opened so as to thoroughly change the air at least twice each day during school session, 20 counts.

If necessary the children can stand and exercise under the direction of the teacher while the air is being freshened. Teachers sometimes object to this five minutes during each session of the school because it interrupts the school work. Is it not worth ten minutes each day to not only change the air in a room full of children, making it healthy and more conducive to study, but also to focus attention for that time on the erect carriage of the body and proper breathing. Many times I have gone into schoolrooms where the air was close and the pupils sat with shoulders bent over and a sort of drowsy vacancy in their expression and I have thought that if only that teacher instead of tiring herself out trying to rouse the interest of her pupils would put aside her book for a few minutes, throw open the windows and lead them in some exercises what a change for the better there would be.

For open windows before and after each session of school for at least five minutes, 10 counts.

For toilets kept clean and properly protected, 20 counts.

Every teacher will be supplied with a book of rules giving very clear directions as to how to play the game and how to instruct the children to influence their friends to help them secure scrubbed floors, sanitary water tanks, etc. This book will also tell about hygiene at home, such as fresh air in the sleeping and living rooms, washing the hands before eating, care of the teeth, etc. The teacher will be asked to read this to the pupils and also lend the book for them to take home.

In the spring every pupil who wishes may write an account of How Our School Helped to Prevent Sickness. These essays shall all be sent to the office of the Association with the age and grade of the author. Every pupil receiving 75 or more counts for the account shall be sent an attractive acknowledgment card. The six best accounts shall be published in the different papers of the state.

The teachers shall keep track of the points gained, on special blanks provided, but members of the local anti-tuberculosis chapter and members of the State Board of Health, including health officers, may visit the schools at any time and report their findings to the main Association. By this means, in the spirit of play, we are encouraging sanitary school rooms, and teaching by word and by example lessons in hygiene to an audience that will never forget them.

To do away with the fertile soil for this disease we must emphasize the importance of sobriety and purity. Dr. Patten of Chicago once said: "It has been estimated that mortality from tuberculosis among alcoholics is double that of non-alcoholics. This is due mainly to a double toxin, namely, the bacilli and alcohol." Drunkenness, vice and filth are three active agents in preparing mankind for infection by the bacilli of tuberculosis.

We must preach the gospel of fresh air. One morning this spring I had occasion to drive at an early hour through the country. The sun had just risen and between the hills there came a soft, mild breeze, fragrant with the freshness of awakening life. On that beautiful, mild morning I passed farm house after farm house with every window shut tight, in fact the open window was the exception.

It is absolutely necessary that there should be a continuous educational campaign against this disease and its allies. We must teach man to look upon his body as a wonderful machine which is in his keeping and which must have care or it will break down just as any machine will break down without care. Everyone is capable of knowing this much, that this machine must be kept clean and in a clean environment; that it must have plenty of wholesome food and fresh air. When we can convince man that sickness and disease are not curses sent by an angry God, but are inevitable consequences of man's failure to obey the laws of God; when we can convince parents that it is far better for their children's future that they should give them a healthy, well-nourished childhood than a bunch of money in the proverbial stocking, then we shall have taken mighty strides in doing away

with the soil which is favorable for the growth of the germs of tuberculosis.

The proposed Association, in co-operation with the State Board of Health, will continue this educational work. I believe that the moving picture outfit is well worth the extra expense because it attracts many people who would not attend a lecture or an exhibit, and once they are there it is up to the lecturer to see to it that they take away with them a few essential health facts. We shall this month distribute with the exhibit an illustrated pamphlet on tuberculosis, which is given to us by the Metropolitan Life Insurance Company. There are many other agencies of which we can make greater use in spreading the gospel of health. I do not believe in scaring people by presenting the horrors of disease but in leading them by presenting the possibilities of health.

Gentlemen, I have endeavored to present to you a summary of the things that it is practical and necessary should be done in the State of Vermont against tuberculosis. It would be easy to talk of many other activities, but this is not so much a discussion of methods as a practical plan of campaign here and now.

We are not confronting a theory or a possibility but an actual fact, that every year over two hundred thousand of our countrymen and about 300 citizens of our state die from tuberculosis and seven times that number are gradually following after them. Just the other day I read the statement in a book by Dr. Chisholm of Vermont that of the one hundred million people in the United States ten million will die from tuberculosis. We pride ourselves on our national honor; we are very much excited that our citizens should have protection in every part of the world, and justly so, but how about the honor of the nation, the state or the individual that will see its citizens die of a preventable disease; that will allow its boys and girls to drift into the clutches of this disease and will not do all in its power to prevent it?

BULLETIN

OF THE

VERMONT STATE BOARD OF HEALTH

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The BULLETIN is published quarterly by the State Board of Health under the authority of Section 5 of Act No. 90, Legislature of 1900. It will be sent to all Boards of Health. A copy will be sent to any person in the State upon request, addressed to the Secretary, Charles F. Dalton, M. D., Burlington.

DR. HENRY D. HOLTON.

Henry Dwight Holton, A. M., M. D., died at his home in Brattleboro, Vermont, February 12, 1917.

The cause of death was malignant disease of the pancreas. For more than a year Dr. Holton had suffered from digestive symptoms. He had repeated attacks of persistent hiccoughs, nausea, and inability to eat or assimilate food, each one leaving him weaker than the last. His final illness began at Christmas, after which he did not leave the house.

Dr. Holton was born at Saxtons River, Vermont, July 24, 1838. His father, Elihu Dwight, was of Puritan descent, and his mother, Nancy Grout, German. Both were of Revolutionary stock.

His preliminary education was obtained at Saxtons River Academy. He studied medicine with Doctors J. H. Warren of Boston and Valentine Mott of New York, graduating at the University of New York in 1860.

After six months of Dispensary work in Brooklyn, he settled in practice in Putney, Vermont. His practice there was that of a general practitioner, and was extensive. In 1867, he removed to Brattleboro, where he spent the rest of his life. He early took a leading place in the profession of the Connecticut Valley. His practice reached into Massachusetts and New Hampshire. He was long the best known surgeon of these parts and enjoyed the confidence of the profession over a wide range and to an unusual degree. Dr. Holton's professional activities continued until his elec-

tion as Secretary of the Vermont State Board of Health in 1900. He gradually relinquished his practice thereafter and devoted himself to his official work and the many business and scientific organizations with which he was connected.

During his active professional life he was a member of the Connecticut River Medical Society and the Vermont State Society and served each as President. In 1873, he was called to the chair of *Materia Medica* in the Medical Department of the University of Vermont, and filled this lectureship thirteen years. He was also a trustee of the University and State Agricultural College for eighteen years from 1873. At the same time he was medical examiner of the Vermont Asylum for the Insane at Brattleboro.

He joined the American Medical Association in 1864, was a Vice President in 1880, and delivered the oration in State Medicine at the Baltimore meeting in 1895. He was active in the organization of the Pan-American Medical Congress and in the National Society for the Study and Prevention of Tuberculosis, and was a member of numerous other scientific organizations in this country and abroad.

Of all his scientific society memberships, Dr. Holton always prized highest that in the American Public Health Association. Its members, especially those oldest in its counsels, were among his warmest personal friends. His membership dated from 1875. In 1892, at the first meeting in Mexico City, he was elected Treasurer, a position he filled until his election to the Presidency in 1901.

Dr. Holton's name in his native state will always be associated with the State Board of Health and its activities.

He was one of a committee of three of the State Medical Society which, in 1873, urged the General Assembly to establish such a Board. The report of this Committee asked for "favorable consideration for this measure, assured that in no better or more speedily remunerative way can the state appropriate a portion of the people's money or more certainly fulfill its high mission, than in protecting its communities, old and young, from the approach or prevalence of contagious and infectious disease."

Later, as member of the House and of the Senate, he interested himself in the establishment and strengthening of the Board. The Board was finally established in 1886. Dr. Holton was appointed to it in 1896, and was its Secretary from 1900 to 1912. In the latter year he insisted on retiring from the Secretaryship, though he retained his membership to the end.

A man of untiring energy, in everything he undertook, he devoted himself most unselfishly to the work of the State Board of Health. He loved the work and believed in it. He had seen, in his early country practice, the ravages of typhoid, scarlet fever, diphtheria, and tuberculosis. He early recognized the possibilities of preventive medicine as regards these infections. He familiarized himself with every community in the

state, and learned the individual needs of each. School houses, water supplies, sewage disposal, disease outbreaks—no detail of local sanitation escaped him. His services were constructive and fearless. He inspired health officers with some of his own energy and optimism, for he was always an optimist. He could criticize a local health officer or prosecute a delinquent man or community and still retain their self respect. His high notions of official duty were strongly tinged with good common sense and the milk of human kindness. No finer or juster tribute has been brought forth by his death, than an editorial in a paper, published in one of the five towns, in which it became Dr. Holton's duty, acting for the Board, a few years ago, to condemn the public water supply and order a change. Among other things, the Enosburg Standard says:

"In the death of Dr. Henry D. Holton, which occurred Monday, at the advanced age of seventy-eight years, Brattleboro and the State of Vermont have lost a man, whose long and unselfish service of a public character has been of inestimable value to both.

"Such public service as that rendered by Dr. Holton cannot be measured by dollars and cents, and was never so measured by him. He gave, without thought of compensation, of his talent and energy, the memory of which and of the many beneficent results of his activities will live after him."

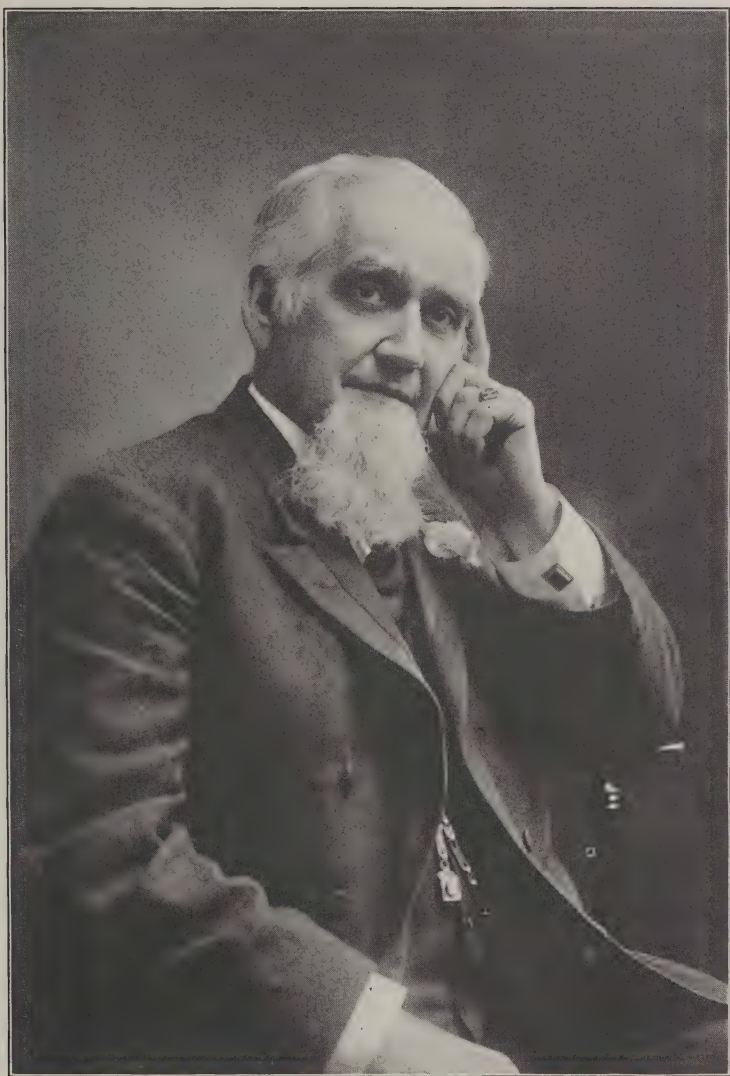
Dr. Holton served his State in other lines. He was a Commissioner to the Nicaraguan Canal Convention in 1892, and the following year to the Columbian Exposition. He was a delegate to the Republican National Convention in 1896. He was long President of the Vermont Branch of the American Red Cross Society, Surgeon to the Sons of Colonial Wars, and member, and once President, of the Vermont Society of Sons of the American Revolution.

It was fitting that the State Legislature, in session at the time of his death, should promptly adopt resolutions of regret and appreciation.

The Village of Brattleboro mourns a loyal and public-spirited citizen. He was the progressive physician, the intelligent public servant, the astute business man, the kind neighbor.

During twenty-five years' service, as member of the School Board (fifteen years as its Chairman) he was largely instrumental in building two of Brattleboro's largest school buildings. The Brattleboro Home for the Aged and Disabled, and the Austine Institution for the education of the deaf and blind, both of which owe their existence chiefly to his industry and broad humanitarianism, were objects of his special care during his last years.

He was trustee from the first of the Brattleboro Free Library, and Moderator for twelve years of the town meetings. These are some of the evidences of the confidence of his neighbors of half a century.



HENRY DWIGHT HOLTON, A.M., M.D.
1838-1917

The Vermont Phoenix speaks of him as a rare combination of skilled medical practitioner and keen business man.

He was for sixteen years President of the Brattleboro Gas Light Company; Director for many years, and latterly President, of the Vermont National Bank; and director and Vice President in the Fort Dummer Mills.

He gave generously and unostentatiously. A year's subscription, to each of the 247 local health officers, to the American Journal of Public Health, and the endowment of a lectureship on Preventive Medicine in the State Medical Society, are instances of his benefactions—for a long time anonymous.

His will contains bequests to the Austine Institution, the Home for Aged and Disabled, Leland and Gray Seminary in Townshend, of whose Trustees he was President, the College of Medicine, U. V. M., and the Baptist Church, in which he was a deacon.

His was a life of action. He was of a truth happiest when busiest. When personal bereavement came to him, his consolation apparently was in work. Age did not dull his interest in life's activities, and only of late had disease lessened his vigor. Thirteen days before his death, the State Board of Health held a meeting in his sick-room. In spite of physical weakness, his interest in the activities of the Board was unabated. All present believed he recognized that it was his last meeting with them, yet he took the same sane, practical view of the subjects discussed as always characterized his counsels.

Dr. Holton married Miss Ellen Hoit, Nov. 19, 1862. Mrs. Holton, for many years in infirm health, died in 1909.

They are survived by an adopted daughter, and two granddaughters.

AN EPITOME OF THE HISTORY OF THE VERMONT STATE BOARD OF HEALTH

The President of the Vermont Medical Society, in 1872, in his annual address recommended "that a committee be appointed to take such measures as might be necessary to secure the establishment of a State Board of Health." For the next fourteen years at every session of the Legislature efforts were made to secure the passage of an Act establishing such a Board. This period was an interesting one in the annals of legislation. The committee consisted of Dr. L. C. Butler, Dr. Sumner Putnam, Dr. Henry D. Holton. With determined persistence at every session, an Act establishing a State Board of Health was passed and became a law in 1886. The Governor appointed Dr. C. L. Allen of Rutland for six years, Dr. A. S. Chesmore of Huntington for four years and Dr. J. H. Hamilton of

Richford for two years. The Board organized December 7, 1886, by electing Dr. Chesmore, President, Dr. Allen, Secretary. The death of Dr. Allen having occurred, a special meeting was called July 4, 1890, to elect a successor to the secretaryship. The Governor having appointed Dr. C. S. Caverly of Rutland to fill the vacancy, Dr. J. H. Hamilton was elected Secretary. In 1891, Dr. O. W. Sherwin was appointed by the Governor to fill the vacancy caused by the death of Dr. Chesmore. May 21, Dr. C. S. Caverly was elected President, Dr. J. H. Hamilton, Secretary. In 1896, as provided by statute, the biennial meeting of the Board was held in Montpelier on the second Tuesday of the session of the Legislature. Dr. Caverly's term having expired the Governor appointed Dr. Henry D. Holton. On the first day of December, 1896, Dr. Hamilton having previously resigned, the Governor appointed Dr. C. S. Caverly to fill the vacancy. The Board organized by electing Dr. Caverly, President, and Dr. Hamilton, Secretary. Dr. Sherwin's term having expired in December, 1898, Dr. T. R. Stiles was appointed to fill the vacancy. At this time Dr. Holton urged the establishment of a bacteriological laboratory. Dr. J. H. Linsley had provided himself with a small outfit for chemical and bacteriological examination. He did not, however, feel that he could undertake the work that the Board would desire. Dr. Holton visited the laboratory at Harvard College, discussing the matter with Dr. Ernst. Correspondence with the Bender Laboratory at Albany only established the fact that Vermont must establish its own laboratory. To do this it evidently was necessary that the subject should be generally understood by as many Vermont citizens as possible. Dr. Linsley volunteered to canvass the state with the understanding that if such an institution was established he should be its superintendent; consequently he made a thorough canvass, the only assistance he had was in his trip across the north end of the state. On that trip Dr. Caverly accompanied him. No member of the Board received any compensation for time or money expended. The Act establishing the laboratory was passed in 1898. Dr. J. H. Linsley was appointed Director. So satisfactory was the work done that in 1900 there was added to its provisions the medico-legal work. February 5, 1901, by reason of illness to Dr. Linsley, Dr. J. M. Wiltse was made Director, pro tem. The death of Dr. Linsley occurred the same month. September 5, 1901, Dr. Wiltse was appointed Director. August 10, 1904, Dr. Wiltse was removed and Dr. H. B. Stone was appointed Director. 1898 marks an epoch in sanitation. Vermont being one of the first states to establish a state laboratory and to install an annual school for the instruction of its health officers. In December, 1900, Dr. Hamilton having previously resigned as Secretary of the Board, Dr. Holton was elected to that office. On the expiration of Dr. Stiles' term in 1896, Dr. F. Thomas Kidder of Woodstock was appointed to fill the vacancy. October 9, 1912, the Secretary, Dr. Holton, presented his resignation to take effect December 1, 1912. It was accepted by the Board and Dr. C. F. Dalton was elected his successor.

LABORATORY OF HYGIENE

HISTORICAL SKETCH—PREPARED BY B. H. STONE, M. D., DIRECTOR

The establishment of the State Diagnosis Laboratory was a natural result of the wonderful development of our knowledge of the cause of communicable disease which followed the discoveries of Koch in the early eighties. It was then learned for the first time that many of these conditions which had previously been recognized by a series of definite physical signs and symptoms might exist with a clinical picture so at variance with the classic cases as never to be recognized except by bacteriological examination. Thus the failure to check epidemics was clearly explained. Private laboratories soon sprang up in various centers of population. The first public health laboratory was established at Munich by Pettenkofer and met with such success that the experiment was soon copied in this country. Rhode Island led in establishing a bacteriological laboratory in 1894. Massachusetts followed closely in 1895, and Vermont was third in succession.

Two very troublesome epidemics of diphtheria, one at St. Johnsbury and one at Bellows Falls, impressed upon the Vermont State Board of Health, composed at that time of Drs. C. S. Caverly, O. W. Sherwin, and H. D. Holton, with Dr. Hamilton as secretary, the urgent need of laboratory assistance in early diagnosis of cases and in the control of epidemics. In the report of the Board of Health for 1896-1897 is found the first recommendation for the establishment of a bacteriological laboratory. This was strongly urged by Dr. Holton who, at the request of the Board, visited the laboratory of Harvard College and the Bender Laboratory at Albany, and came back more than ever convinced that Vermont must establish its own laboratory. The state was fortunate at this period in having in Burlington connected with the Department of Pathology of the College of Medicine, Dr. J. H. Linsley. With this realization of their need for a diagnostic laboratory, the Board naturally turned to Dr. Linsley, who was one of the pioneers of bacteriology in America and who had just completed the first text book on the subject in the English language, a translation of Fränkel's work. Dr. Linsley early appreciating the importance to modern medicine of the discoveries in bacteriology went to Berlin in 1890 and studied under Koch; returning to New York he established a laboratory at the Post Graduate Medical School and was later sent back to Berlin by this school to study Koch's treatment of tuberculosis. In addition to a first hand knowledge of all the newly devised laboratory methods, Dr. Linsley was possessed to an unusual degree of the characteristics of energy and enthusiasm. He agreed to equip a laboratory at his own expense to make examinations of suspected cases of diphtheria and typhoid fever for the physicians of the state, provided the Board would pay some part of its maintenance and make an appeal to the next Legislature for a permanent appropriation. Thus the work began in a modest way in February, 1898, with no assurance of any state aid beyond the \$400 which the Board was allowed to divert from its

own scanty appropriation to this purpose. The work soon increased so that help was necessary and the assistance of Drs. M. J. Wiltse and B. H. Stone was secured. It was hoped that this preliminary work would furnish such an object lesson of the value of laboratory assistance in sanitary methods as would provide the arguments necessary to induce the Legislature to grant the desired appropriation. To accomplish this end it was soon seen that the proposition must be explained to as many Vermont physicians and other citizens as possible and Dr. Linsley volunteered to canvass the state with the understanding that if such an institution was established he should be reimbursed for his actual expenditures for the purchase of apparatus and should become Director of the institution. During the summer of 1898 Dr. Linsley made a thorough canvass of the state, using for part of this trip the first automobile which had ever appeared in Vermont, one of the early steam cars built by the Locomobile Company. The interest which this novel vehicle caused undoubtedly had some influence in attracting attention to the proposition for which the canvass was made. On part of this trip he was accompanied by Dr. Caverly.

The bill was introduced into the Legislature of 1898 and Dr. Linsley appeared before the committee and gave a novel demonstration of the laboratory methods with which he reinforced his argument to such good effect that he obtained with practical unanimity from our Legislature an appropriation for this work that six months before would have seemed beyond possibility. Using his ripe experience, he organized an efficient working laboratory that was a model of its kind, but he was not content with this, and we find in his early recommendations many of the features unique at that time which have since been successfully introduced in Vermont and elsewhere. He recommended the publication of a journal; the establishment of a school of instruction for health officers; and the passage of a pure food and drug law, with the appointment of members of the laboratory staff to act as inspectors to see that the law was enforced. Some of these recommendations he lived to see in effect. He arranged for and attended the first school of instruction for health officers and contributed largely for the first issue of the BULLETIN.

The laboratory law as passed by the session of 1898 provided only for the chemical and bacteriological examinations of water supplies, milk, and other food products, and the examination of cases and suspected cases of diphtheria, typhoid fever, tuberculosis, malaria, and other infectious and contagious diseases.

The Act as finally passed is as follows:

Section 1. The State Board of Health is authorized to establish and equip with the proper and necessary apparatus, utensils and instruments of a state bacteriological laboratory, for the chemical and bacteriological examination of water supplies, milk, and all food products, and the examination of cases and suspected cases of diphtheria, typhoid fever, tuberculosis, malaria, and other infections and contagious diseases.

Section 2. The State Board of Health shall appoint a director of such laboratory, who shall hold office for two years from the first day of December, 1898, and biennially thereafter said board of health shall appoint a director of such laboratory for a similar term. He shall keep a record of all specimens sent to him for examination by the residents of the state, and examine these specimens without unnecessary delay. He shall biennially before the first day of January make a full report to the State Board of Health of all matters pertaining to the laboratory, and shall make such other and special reports as the State Board of Health may ask for. His salary and that of his assistant shall be fixed by the State Board of Health.

Section 3. The use of the laboratory and all investigations therein made shall be free to the people of the state.

Section 4. The sum of five thousand dollars is hereby appropriated for the purpose of procuring the proper and necessary apparatus, utensils and instruments for the equipment of the laboratory; and the sum of eight thousand dollars per year is hereby appropriated to pay the salaries, procure the necessary supplies, and to meet the other necessary expenses of said laboratory, which sums shall be expended under the supervision of the State Board of Health. The total annual expense of maintaining the said laboratory shall not exceed the sum of eight thousand dollars.

Section 5. This Act shall take effect from its passage.

The Legislature of 1900 increased the original appropriation of the bacteriological laboratory from \$8,000 to \$10,000 a year, at the same time materially increasing the scope of its work, and changing its name to laboratory of hygiene as more appropriate, in view of the increased scope, than the original name. It authorized the establishment of a school for health officers to be held at least once every year and left to the discretion of the Board of Health the publication of a periodical. The expense of both these innovations was to come from the increased laboratory appropriation. By this legislative act the duties of the laboratory were extended to include expert investigations, chemical and pathological, of use to a prosecuting officer in any case pending in his office, and specified that testimony concerning such cases should be given in court by the person making the investigation for actual expense of attendance.

"Section 1. The State Board of Health is authorized to establish and equip with the proper and necessary apparatus, utensils, and instruments, a laboratory of hygiene, for the chemical and bacteriological examination of water supplies, milk, and all food products, and the examination of cases and suspected cases of diphtheria, typhoid fever, tuberculosis, malaria, and other contagious and infectious diseases, and may conduct a school of instruction for health officers of the state, at least once a year, at such time and place as they shall direct. They may, at their discretion, issue a periodical, the object of which shall be to publish the results of the work done at the laboratory, and also the latest approved methods for the protection of the

public health, said publication to be furnished free to all health officers of the state."

"Section 4. The use of the laboratory, and all investigations mentioned in this Act therein made, shall be free to the people of this state. And whenever the state's attorney of any county on the order of a judge of the supreme court shall request for use in any criminal case pending in his office an expert investigation, chemical or pathological, of any substance, such investigation shall be made at the laboratory forthwith, without charge to the state, and the expert making such investigation shall submit the results of his work to the state's attorney at whose request it is done, and shall attend court as a witness at any place in the state when required to do so by subpoena and submit in court the results of his investigations, and shall be paid as such witness his actual expenses of attendance, when summoned by the state."

This combination of public health and medico-legal work was unique at this time and so far as the writer has been able to learn it is not now handled in any other board of health laboratory. It marked a departure from precedent which we believe has been of great economic value in this state, i. e., concentration of the scientific work demanded by the increasing complexity of our society and the ever accumulating discoveries not only in sanitation but in other sciences which touch intimately the life of the people. This additional work necessitated the time of another chemist but it did not involve any appreciable increase in the overhead expense. This work for the courts was still further extended by the Legislature of 1906 to include autopsies in cases of suspicious deaths. The work of the preceding four years demonstrated that it would be of great advantage in many criminal cases involving the possible chemical examination of viscera to have the toxicologist present at the autopsy. The expert observations of a specialist might often note in the immediate examination, facts which would greatly simplify subsequent work and there could in this way never be any question about the delivery of the specimens to the chemist. Furthermore, the ordinary physician having only rare occasions to perform medico-legal autopsies could not be expected to do this work as skillfully as an expert pathologist trained in this specialty.

To accomplish this, the law of 1900 was amended by adding a section as follows:

"Section 5426, Autopsies. If a superior judge or the attorney general orders an autopsy on the body of a person, as provided in section two thousand three hundred and forty-six, he shall therein direct that such autopsy shall be made by the pathologist of the laboratory of hygiene or under his direction, unless, for good cause shown, said judge or the attorney general otherwise directs. At such autopsy, said pathologist shall take and preserve under proper seal, such portions of the body and its contents, together with such other articles as he judges may require subsequent examination in the investigation of the case. For performing such an autopsy, the

pathologist shall be paid his actual expenses, including the expenses of his assistants. The auditor of accounts shall, upon presentation of the account for such expenses, duly sworn to by such pathologist and approved by the state's attorney of the county or the attorney general, draw an order therefor."

The Legislature of 1904 passed the first general food law, placing the administration of this law in the hands of the State Board of Health and making members of the Board and local health officers all over the state, inspectors. The enforcement of this law largely increased the work of the laboratory as analyses of food and drug products is the only method of determining adulteration as defined by the law.

The next session, that of 1906, amended this law by giving to members of the State Board of Health, the director, chemist, or assistant chemists of the State Laboratory of Hygiene, the same power to inspect food supplies and to enter for this purpose any place where such materials were stored or kept for sale.

No. 175, Acts of 1906.

"A health officer of a town may inspect the carcasses of slaughtered animals intended for food, and meat, fish, vegetables, produce, fruit, or provisions found in his town, and for such purpose may enter any building, enclosure, or other place in which such carcasses or articles are stored, kept or exposed for sale. If such carcasses or articles are designated for food for man and are found tainted, diseased, corrupted, decayed, unwholesome, or from any cause unfit for food, the local Board of Health shall seize the same and cause it to be forthwith destroyed or disposed of otherwise than for food. A member of the State Board of Health, or the director, chemist, or assistant chemist of the State Laboratory of Hygiene shall have the same powers as local health officers under the provisions of this section."

It will be noticed that the peculiar wording of this section might easily be construed to restrict the state officers as well as the local health officer to act in "his town." The effect of this was to nullify the state-wide authority intended to be given by the amendment. This fault was not remedied until the session of 1915. This Act of 1906 carried an appropriation of \$2,500 for carrying out the provisions of the Pure Food Act of the previous session. The Legislature also revised the wording of the entire law to make it conform to the newly enacted food and drug law. In its amended form it made it the privilege of any citizen to submit to the state laboratory a specimen of food or drug concerning the purity or genuineness of which doubt had arisen.

"Section 5479. A person who doubts the purity or genuineness of an article of food or drug which he has purchased, may at his own expense, send a sealed sample to the State Laboratory of Hygiene for inspection."

The Legislature of 1906 required that a specimen of each brand of intoxicating liquor sold by the wholesale dealers in the state should be sub-

mitted to the state laboratory and examined for adulteration, prohibited in Chapter 226 (The Food and Drug Law) of the public statutes and for conformity with the standards in effect under this chapter. It also provided that any person suspecting a licensee of selling adulterated liquor might call the attention of the license commissioners to the suspicion and procure an order from them to purchase such a sample for analysis at the Laboratory of Hygiene. The Legislature of 1910 gave to the secretary of state, also, the privilege of purchasing such samples for analysis at the State Laboratory of Hygiene.

The Legislature of 1908 passed an Act to provide against the adulteration of paint and to regulate the sale thereof, and made it the privilege of the selectmen of the town or the inspector of paint, if such an officer should be appointed under the authority of the law, to "submit samples (of paint and oils) to the State Laboratory of Hygiene for analysis and inspection under the same regulations and with the same restriction as are provided for the analysis of intoxicating liquors." This same Legislature combined the appropriation for the laboratory and that for the administration of the food law, and brought the total appropriation for the use of the Laboratory of Hygiene up to \$15,000, where it remains at the present writing.

The Legislature of 1912 passed an Act to prevent the spread of certain infectious diseases under which occurs the following section: "The State Board of Health shall provide at the expense of the state, facilities for the free bacteriological examination of discharges from the diagnosis of gonorrhoeal infections. * * * and shall make at the expense of the state the Wassermann test or examinations of smears for the diagnosis of syphilis." This section added much highly technical work, the amount of which has been increasing ever since the passage of the Act.

The Legislature of 1915 passed an Act for the purpose of aiding in the control of infectious bovine abortion which provided that specimens of the blood of dairy cattle suspected of having this disease might be forwarded to the laboratory by any resident of the state and should be there examined for the presence of this infection. This section added more work of the same character as that required in the testing of specimens for venereal diseases.

Finally the Legislature of 1916, in session at the present writing, has under consideration a bill for the standardization of gasoline and one to aid poultry dealers in suppressing a communicable disease known as white diarrhea of chickens which is prevalent to some extent among the poultry of the state. These bills, if they pass, will add much work to the institution.

The fact that aside from all of the field work and advice and consultations on various subjects which have been at the service of the state, that there have actually been made 167,393 laboratory analyses, many of which were long and time consuming, during the eighteen years of the existence of the institution, and the fact that the number of laboratory examinations

made in 1916 was 393 per cent above the number made during the first full year, is the best sort of evidence of the usefulness of the institution.

To any one at all conversant with sanitary conditions in the state no argument for the fruitfulness of this work is at all necessary. Epidemics have practically disappeared. Occasionally an incipient one arises but the prompt use of laboratory methods of diagnosis to determine the nature of the illness and to weed out the dangerous carrier cases, results in almost immediate suppression. The water supplies of the state have been greatly improved since laboratory analyses demonstrated conclusively the dangerous pollution existing in some of those in use in 1899. The saving of life in this way alone more than compensates for any money expended.

Aside from the value of the institution to public health, which is, of course, its greatest service, much money has been saved to the state in the investigation of crime and suspected crime. Many cases have been brought to conviction in which the work of the institution has been of great value to the prosecuting officers and many people against whom the finger of suspicion would have been pointed through life have been cleared by investigations made by the staff of the Laboratory of Hygiene. The character of foods and drugs sold in the markets of the state have improved wonderfully since the passage of the pure food law. The people of the state can rest safe in the assurance that they are now getting what they pay for when they buy foods and drugs from Vermont retailers.

The activities of the Laboratory of Hygiene have been so extended through the years of its existence by the successive legislatures, as indicated above, that it seems likely that many people of the state who are entitled to take advantage of its free work do not do so from ignorance of their privilege or from the uncertainty as to the procedure necessary. That the people may know what can be done for them and what steps to take if they desire to obtain its services, we purpose to follow this historical sketch with a detailed description of the work done and the steps necessary to follow in getting this service.

BARBER SHOP REGULATIONS

The local Board of Health of Rutland has issued the following rules for the control of barber shops:

"The hands of the barber shall be washed with soap and water before serving each customer.

"Brushes and combs shall frequently be thoroughly cleaned with soap and water.

"Shaving mugs and brushes shall be thoroughly rinsed after each use thereof."

"There shall be a separate clean towel for each customer. The head rest shall be covered by a clean towel or paper.

"Alum or other material used to stop the flow of blood shall be applied in powdered or liquid form only.

"After working on a customer affected with any eruption, or whose skin is broken out, or is inflamed or contains pus, the hands of the barber shall be immediately disinfected. This shall be done by a thorough washing with soap and water, followed by rinsing in alcohol (70 to 80 per cent) or in a solution of corrosive sublimate (1-1000).

"The instruments used for a customer affected with any of the above mentioned disorders shall be made safe immediately after such use by washing with soap and water and dipping one minute in a 10 per cent solution of 40 per cent formalin or dipping for three minutes in alcohol (70-80 per cent).

"No cup or brush which has been used in the shaving of a customer infected with any of the above disorders of the face shall be used for another customer unless the cup shall have been emptied and cleansed by boiling water and furnished with fresh soap, and the brush has been sterilized by a three minute exposure to alcohol (70-80 per cent) or to a solution of corrosive sublimate (1-1000).

"All razors, massage instruments and all utensils used by barbers shall be kept in a clean and sanitary condition."

REPORT OF THE LABORATORY OF HYGIENE

The figures below represent the analytical work performed in the Laboratory of Hygiene during the months of November and December, 1916, and January, 1917.

Cultures from the throat examined for diphtheria bacilli.

	Nov.	Dec.	Jan.
Positive	204	44	55
Negative	1199	686	581
Total	1403	730	636

Specimens of blood examined for Widal reaction.

	Nov.	Dec.	Jan.
Positive	8	10	4
Negative	33	38	28
Total	41	48	32

Specimens of sputum examined for tubercle bacilli.

	Nov.	Dec.	Jan.
Positive	9	15	22
Negative	123	115	159
Total	132	130	181

Specimens of food products (detail table following) examined for compliance with legal standards.

	Nov.	Dec.	Jan.
Legal	13	35	18
Adulterated		1	
Total	13	36	18

Miscellaneous examinations (unclassified).

	Nov.	Dec.	Jan.
Positive	68	56	53
Negative	109	74	98
Total	177	130	151

Specimens of water examined for potability.

	Nov.	Dec.	Jan.
Ground waters.			
Normal	15	20	34
Showing present pollution	4	10	1
Showing past pollution	15	6	14
Showing past and present pollution	3		3
Surface waters.			
Normal	1	3	
Polluted	3		
Total	41	39	52

Specimens of drugs (detail table following) examined for compliance with legal standards.

	Nov.	Dec.	Jan.
Legal	34	16	32
Illegal	5	2	18
Total	39	18	50

Specimens of liquor examined for the Secretary of State under the Fourth Class License Law.

	Nov.	Dec.	Jan.
Legal	8	1	
Illegal			
Total	8	1	

Specimens of liquor examined for licensee.

	Nov.	Dec.	Jan.
Legal			1
Illegal			
Total			1

Examinations for the Department of Justice.

	Nov.	Dec.	Jan.
Autopsies (medico-legal)	4	3	
Miscellaneous examinations	9	10	1
Total	13	13	1

Autopsies for cause of death where no foul play was suspected.

	Nov.	Dec.	Jan.
	4	10	3

Blood for Wassermann reaction.

	Nov.	Dec.	Jan.
Positive	9	8	12
Negative	49	46	38
Suspicious	4	1	5
Total	62	55	55

Specimens of blood examined for malarial parasites.

	Nov.	Dec.	Jan.
Positive			
Negative	1	1	
Total	1	1	

Specimens of milk (detail table following) examined for compliance with legal standards.

	Nov.	Dec.	Jan.
Above standard	47	43	30
Below standard	62	49	35
Total	109	92	65
Grand Total	2043	1303	1215

RESULTS OF EXAMINATION OF SAMPLES OF MILK
—NO. 118, ACTS OF 1908.

JANUARY, 1917.

BURLINGTON.

*Above Standard.**

J. Demper
L. Genereaux
University Meat and Grocery Co.
A. L. Ritchie
Steele & Butler
C. P. Ashline
N. W. MacMurphy
B. I. Newton
L. E. Haynes
I. W. Catlin
John Stewart
H. W. Little
M. Callen

*Below Standard.
Not Absolutely Clean.*

J. A. Leary Estate
J. A. St. John
F. L. Murray
J. O'Brien
F. Poquette
Wm. McGrath
Bostwick Bros.
George Sager
H. Moscowitz
F. Saltus
I. Adler
Lareau Bros.
O. E. Barber

Dirty.

Canning & Finnigan
Soule & White

*Dirty and Low Quality,
Chemically.*

Rosenberg

ESSEX JUNCTION.

Above Standard.

J. N. Jenne
Chas. Tyler

Below Standard.

Dirty.

Clayton Jennings

SHELBURNE.

Above Standard.

Harrington Farm

SPRINGFIELD.

Above Standard.

Aldrich

WINOOSKI.

Below Standard.

Dirty.

F. J. Allard

WILLIAMSTOWN.

Above Standard.

Jessie Martin

Below Standard.

Not Absolutely Clean.

Jessie Martin

Carl Seaver

WILMINGTON.

Above Standard.

Jos. Gilbert

R. P. Crafts

M. A. Brown

Carl Batchelder

Below Standard.

Dirty.

M. A. Brown

Frank Mann

Ross Crafts

Dirty and Poor Quality.

W. D. Carpenter

WINDSOR.

Above Standard.

James Chadwick

SUBMITTED SAMPLES FOR JANUARY.

Above standard	7
Below standard	
Not absolutely clean	3
Dirty	4
Low quality, chemically	2
Low quality, chemically and physically	3

* MILK STANDARD.—1. *Milk* is fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

SPECIMENS OF MILK EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

[illegible]

SPECIMENS OF MILK EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

Source of Sample			Laboratory Number	Date Obtained	Result of Examination							Total		
					Above Standard			Below Standard						
					Total Solids	Solids Not Fat	Fat	Total	Visible Dirt	Poor Quality	Dirty & Poor Quality		Total	Bacteria per c.c.
Town	Retailer Obtained from	Producer	Series A	1916										
Burlington.	J. A. Leary, Est.		64815A	Nov. 14	Top	Milk				1				
"	I. Adler		816A	"										
"	M. A. Ryan		817A	"								1		
"	Tony Brice		818A	"										
"	A. C. Ritchie		819A	"										
"	Bestwick Bros.		820A	"										
"	Geo. Saiger		821A	"	Top	Milk								
"	H. A. Little		822A	"										
"	Jos. Dempster		823A	"	13.4	8.9	4.5							15,000
"	L. Genereaux		824A	"										
"	E. L. Murray		825A	"	14.5	8.8	5.7							500,000
"	M. Callen		826A	"										
"	A. Moscovitz		827A	"										
"	L. Bleck		828A	"	12.5	8.6	3.9							500,000
"	J. O'Brien		829A	"										
"	Vt. Grocery & Meat Co.		830A	"										
"	B. I. Newton		65291A	Nov. 21	13.4	9.2	4.2							40,000
"	I. W. Catlin		292A	"	13.8	9.2	4.6							2,000
"	Wm. McGrath		293A	"	13.6	9.	4.6							12,000
"	H. A. Bixby		294A	"						1				20,000
"	L. E. Haynes		295A	"						1				25,000
"	C. P. Ashline		296A	"						1				25,000
"	Steele & Butler		297A	"	12.4	8.7	3.7							40,000
"	O. E. Barber		298A	"						1				40,000
"	E. W. Cowles		299A	"						1				4,000
"	N. W. MacMurphy		300A	"	13.2	9.1	4.1							10,000
"	Larson Bros.		301A	"								1		80,000
"	Soule & White		302A	"						1				80,000
"	C. K. Tyler		303A	"						1				20,000
"	F. P. Calkins		304A	"						1				40,000
"	John Stewart			"										
"	Spear St. Dairy No. 1			"										
"	Cannings & Finnigan		305A	"						1				80,000
"	Mercure Bros.		306A	"						1				50,000
"	Edw. Roy		411A	"	22					1				40,000
"	J. A. St. John		412A	"										
"			682A	"	27	12.9	8.8	4.1						50,000

SPECIMENS OF MILK EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

Source of Sample			Laboratory Number	Date Obtained	Result of Examination							Total	
					Above Standard			Below Standard					
Town	Retailer Obtained from	Producer	Series A	1916	Total Solids	Solids Not Fat	Fat	Total	Visible Dirt	Poor Quality	Dirty & Poor Quality	Total	Bacteria per c.c.
Burlington	F. Paquette.		65683A	Nov. 27	12.6	8.8	3.8				1		90,000
"	Wm. Suckstoff.		684A	"									80,000
"	H. Gladstone.		685A	"	13.3	9.1	4.2		1				12,000
"	Gilbert Miller.		701A	Nov. 28									10,000
"	M. Glasston.		702A	Nov. 29	13.7	9.3	4.4				1		45,000
"	John Stewart.	Stewart Farm.	849A	Nov. 29									40,000
"	J. A. Leary, Est.		66312A	Dec. 6									100,000
"	I. Adler.		313A	"									100,000
"	A. C. Ritchie.		314A	"	12.8	8.8	4.						80,000
"	Eastwick Bros.		315A	"									200,000
"	H. A. Little.		316A	"									24,000
"	F. Paquette.		317A	"									100,000
"	J. A. St. John.		318A	"									90,000
"	Jos. Dempster.		319A	"									170,000
"	B. I. Newton.	Baby Milk.	864A	Dec. 19									
"	C. P. Ashline.	Baby Milk	865A	"									
"	N. W. MacMurphy.	Baby Milk	866A	"									
"	John Stewart.	Spear St. Dairy No. 2.	867A	"	12.8	8.9	3.9						
"	Steele & Butler.		868A	"	12.5	8.8	3.7						
"	Laracu Bros.		870A	"	14.1	9.4	4.7						
"	H. Bixby.		871A	"	12.6	8.9	3.7						
"	C. K. Tyler.		872A	"					1				
"	W. McGrath.		873A	"	12.7	8.9	3.8						
"	Canning & Finnigan.	Fitzgerald.	874A	"	13.4	9.1	4.3						
"	Geo. Saiger.	Brown & Willette.	875A	"					1				125,000
"	University M. & G. Co.		891A	"					1				6,000
"	A. Moscovitz.		892A	"					1				150,000
"	L. Genereaux.	Soule & White.	893A	"					1				150,000
"	M. Callan.	Aldrich.	894A	"					1				120,000
"	Wm. Suckstoff.	Millham.	895A	"					1				100,000
"	L. Block.	Wheeler.	896A	"	13.2	9.	4.2						80,000
"	F. L. Murray.	Aldrich.	897A	"							1		120,000
"			898A	"									40,000

SPECIMENS OF MILK EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

Source of Sample			Laboratory Number	Date Obtained	Result of Examination							Total	
					Above Standard			Below Standard					
					Total Solids	Solids Not Fat	Fat	Total	Visible Dirt	Poor Quality	Dirty & Poor Quality		Total Bacteria per c.c.
Town	Retailer Obtained from	Producer	Series A	1916									
Castleton...	A. E. Higley...	...	63876A	Nov. 1	...	...	...	...	1	...	...	...	...
"	G. B. Woodbury...	...	877A	"	12.5	8.7	3.8	...	1	...	...	...	...
"	Claude Gibbs...	...	878A	"	...	...	...	...	...	...	...	...	...
"	C. R. Leavenworth...	...	879A	"	...	...	...	...	...	...	...	...	...
"	Pine Cliff Farm...	...	880A	"	...	...	...	...	...	...	...	...	...
"	J. A. Woodbury...	...	881A	"	...	...	...	...	...	...	...	...	...
"	Fred Rogers...	...	882A	"	...	...	...	...	...	...	...	...	...
"	I. M. Coon...	...	883A	"	...	...	...	...	...	...	...	...	...
Fair Haven...	Pine Cliff Farm...	...	970A	"	...	...	...	...	...	...	...	...	...
"	Rob't Griffith...	...	971A	"	...	...	...	...	...	...	...	...	...
"	F. A. Norton...	...	972A	"	...	...	...	...	...	...	...	...	...
"	J. A. Hood...	...	973A	"	...	...	...	...	...	...	...	...	...
"	Jos. Thraill...	...	974A	"	...	...	...	...	...	...	...	...	...
Poultney...	Hickey Bros...	...	64380A	Nov. 6	14.9	9.1	5.8	...	...	...	...	...	...
"	Harry Sherman...	...	381A	"	11.9	8.5	3.4	...	1	...	...	...	...
"	Fred Howes...	...	382A	"	12.9	9.	3.9	...	...	...	...	...	...
Proctor...	Will Mead...	...	831A	Nov. 14	12.4	8.8	3.6	...	1	...	...	...	...
"	B. Hier...	...	832A	"	...	...	...	...	...	...	...	...	...
"	W. Sharp...	...	833A	"	...	...	...	...	...	...	...	...	...
"	Guy Martin...	...	834A	"	...	...	...	...	...	...	...	...	...
"	Will Mead...	...	835A	"	12.3	8.7	3.6	...	1	...	...	...	...
"	Bert Hier...	...	66208A	Dec. 4	12.8	8.8	4.	...	...	...	...	...	...
"	W. Sharp...	...	209A	"	12.7	8.9	3.8	...	...	...	...	...	...
"	Guy Martin...	...	210A	"	...	...	...	...	1	...	...	...	...
"	Wm. Mead...	No. 1.	211A	"	...	...	...	...	1	...	...	...	...
"	Wm. Mead...	No. 2.	212A	"	13.	8.9	4.1	...	...	...	...	5,000	...
Rutland...	Cramton & Lobdell...	...	863A	Dec. 18	...	...	...	...	...	...	...	...	...
Rutland Co...	Totals...	...	...	...	10	21	...	...	21	...	21	...	31
Northfield...	Geo. Selina...	...	66637A	Dec. 13	13.	9.	4.	...	...	...	...	...	...
"	W. T. Stevens...	...	635A	"	...	...	...	...	1	...	...	...	...

PECIMENS OF MILK EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

Source of Sample			Laboratory Number	Date Obtained	Result of Examination								Total
Town	Retailer Obtained from	Producer			Above Standard				Below Standard				
					Total Solids	Solids Not Fat	Fat	Total	Visible Dirt	Poor Quality	Dirty & Poor Quality	Total Remarks	
Series A 1916													
Northfield.	H. H. Slack.	E. S. McGladin.	66639A	Dec. 13	14.6	9.	5.6						
"	W. T. Stevens.	"	640A	"	13.	8.9	4.1						
"	F. E. Reed.	"	641A	"					1				
"	Houston & Denny.	"	642A	"	13.1	9.1	4.						
"	J. S. Cook.	"	643A	"					1				
"	M. J. Clough.	"	644A	"					1				
Washington Co.	Total.							4	4		4		8
Chester.	Submitted samples.							4					
Windsor Co.	Totals.							4					4
Grand Totals								90	100	5	6	111	201
					62								2

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination					Remarks	Total
						Under "Food and Drug Law"						
			Retailer Obtained from	Manufacturer or Wholesaler		Legal	Adul-terated	Mis-branded	Whole-some	Unwhole-some		
Pork.....	64355A	Nov. 7 *			Addison Co.							
Sweet Spis. Nitre.....	64201A	Nov. 2	W. H. Sheldon		Bristol.....	1			1			
Spis. Camphor.....	64199A	"	"		Middlebury.....	1						
Spis. Peppermint.....	64200A	"	"		"		1					
Spis. Anise.....	64197A	"	"		"							
Tinct. Iodine.....	64198A	"	"		"	1						
	64195A	"	Park Drug Store.		"	1						
Spis. Camphor.....	64194A	"	"		"	1						
Spis. Peppermint.....	64196A	"	"		"	1						
Spis. Anise.....	64188A	"	Frost's Pharmacy.		"	1						
Spis. Camphor.....	64191A	"	"		"	1						
Sweet Spis. Nitre.....	64192A	"	"		"		1					
Camphorated Oil.....	64193A	"	"		"	1						
Tinct. Iodine.....	64189A	"	"		"	1						
Lact. Pepsin.....	64501A	Nov. 8			Vergennes.....			1				
Fresh Pork.....	66705A	Dec. 15			Starksboro.....				1			
"	66721A	"			"							
Addison County.....	Total.....					12	2	1	3			18
Cider.....	64123A	Oct. 30			Chittenden Co.							
"	64124A	"			Essex.....	1						
"	63857A	"			"	1						
Butter.....	65477A	Nov. 22			Milton.....	1						
"	66011A	Dec. 2			Burlington.....	1						
Honey.....	66588A	Dec. 8			"	1						
Onward Brand			Combination Cash									
Tomato Catsup.....	65421A	Nov. 22	Store.....		"	1						
Pure Apple Jelly.....	65422A	"	"		"	1						
American Club Hand Picked Selected Tomatoes.....	65433A	"	"		"	1						

[illegible]

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916, AND JANUARY, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample			Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Under "Food and Drug Law"			Submitted Domestic Product			
						Legal	Adul- terated	Mis- branded	Whole	Unwhole- some		
Spts. Camphor.....	67332A	Dec. 29	Smith's Drug Store.....		Franklin Co.	1						2.8 % Ethyl Nitrite.....
Sweet Spts.Nitre.....	67331A	"	"		St. Albans.							1.4 % Ethyl Nitrite.....
Carbolic Acid.....	67328A	"	John C. Reagan & Co.....		"		1					
Pure Olive Oil.....	67329A	"	"		"	1	1					
Tinct. Iodine.....	67324A	"	"		"							
Camphorated Oil.....	67325A	"	"		"	1	1					Only trace of Potass. Iodide.....
Fowler's Sol.....	67327A	"	"		"		1					85 % of required Arsenic Trioxide
Spts. Camphor.....	67330A	"	"		"		1					55 % of required Camphor.....
Sweet Spts. Nitre.....	67308A	"	Colomb's Phar.....		"		1					80 % of required Camphor.....
Tinct. Iodine.....	67309A	"	"		"			1				1.2 % Ethyl Nitrite.....
"	67310A	"	"		"	1						
"	67314A	"	Fred'k Dutcher Drug Co.....		"							
Camphorated Oil.....	67311A	"	"		"	1						
Spts. Camphor.....	67312A	"	"		"	1						
Sweet Spts. Nitre.....	67313A	"	"		"	1						
Sweet Spts. Nitre.....	67319A	"	E. J. Alexander.....		"		1					2.4 % Ethyl Nitrite.....
Tinct. Iodine.....	67316A	"	"		"	1						
Spts. Camphor.....	67317A	"	"		"	1						
Ess. Peppermint.....	67318A	"	"		"	1						
"	67320A	"	B. C. Sheldon.....		Swanton.	1						
Ess. Anise.....	67321A	"	"		"	1						
Tinct. Iodine.....	67322A	"	"		"	1						
Spts. Camphor.....	67323A	"	"		"	1						
Sweet Spts. Nitre.....	67333A	"	"		"		1					1.7 % Ethyl Nitrite.....
"	67336A	"	Swanton Drug Co.....		"	1						
Tinct. Iodine.....	67335A	"	"		"	1						
Fowler's Solution.....	67335A	"	"		"	1						
Finest Olive Oil.....	67334A	"	"		"	1						
"Talos Brand".....	67337A	"	C. C. Lucier.....		"	1						
Franklin County.....	Total.					20	8	1				29

Pork Liver.....	67001A	Dec. 12	.....	.....	Orleans Co. Barton.....	.....	.....	1	.....	.....	.....	1
Orleans County...	Total...	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Olive Oil.....	65825A	Nov. 28	.....	.....	Washington Co. Barre.....	1	.....	.....	.....	.....	.....	.....
Dromedary Dates...	65832A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Dilute Phosphoric Acid.....	65812A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Sweet Spts. Nitre....	65829A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Spts. Camphor.....	65830A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Sweet Spts. Nitre....	65813A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Fowler's Solution....	65808A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65820A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65818A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Spts. Camphor.....	65821A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Camphorated Oil....	65815A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65823A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65827A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Tinct. Iodine.....	65831A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65814A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65820A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Ess. Peppermint....	65817A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Ess. Spearmint....	65822A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Ess. Peppermint....	65828A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65810A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Ess. Anise.....	65811A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
"	65824A	"	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Washington County	Total...	.....	.....	.....	.....	18	4	.....	.....	.....	.....	22
Lard.....	60208A	Dec. 27	.....	.....	Windsor Co. Woodstock....	.....	.....	.....	1	.....	.....	.....
Windsor County...	Total...	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Grand Totals.....	.....	.....	.....	.....	.....	92	14	.....	4	.....	.....	111
Flour.....	67423A	Jan. 2	.....	.....	Addison Co. Vergennes....	.....	.....	.....	1	.....	.....	.....
Salt Pork.....	68634A	Jan. 26	.....	.....	Bristol.....	.....	.....	.....	1	.....	.....	.....
Addison County...	Total...	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2

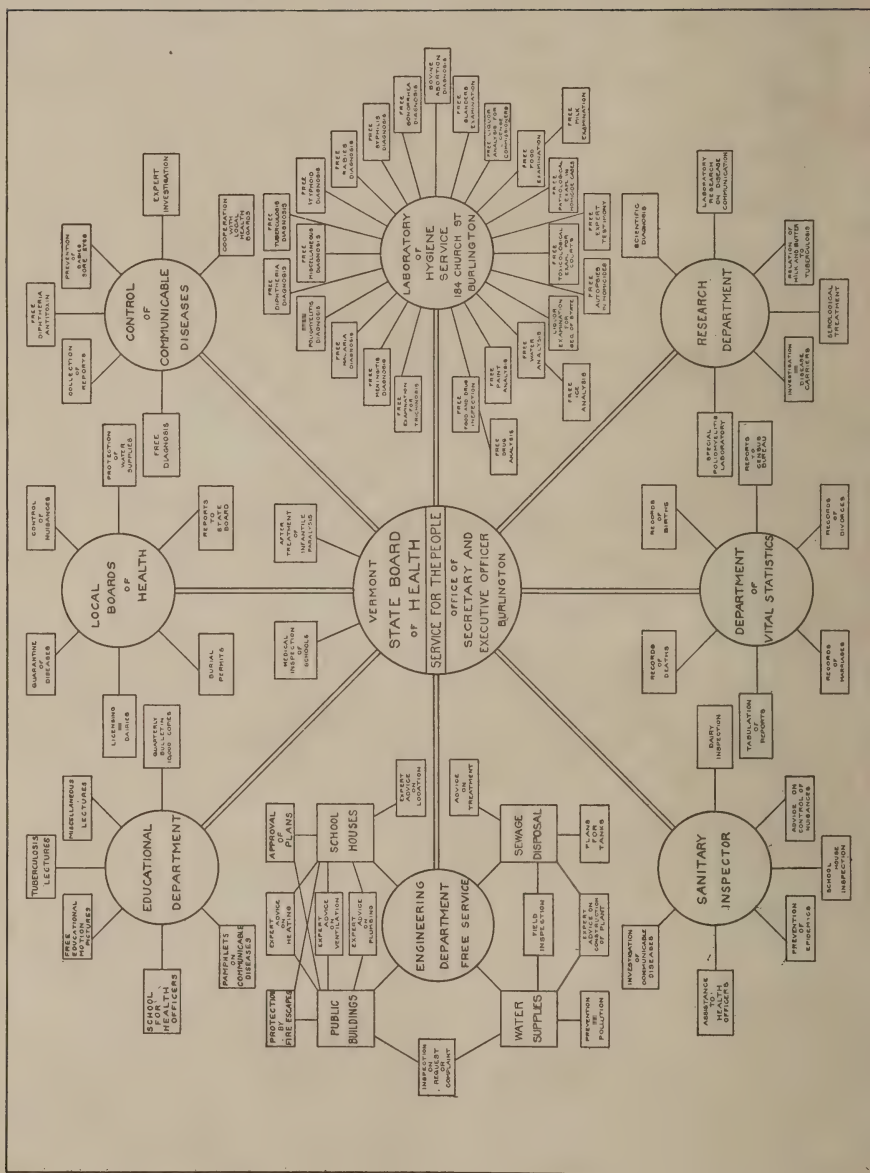
SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING JANUARY, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler		Under "Food and Domestic Product Drug Law"						
						Legal	Adul-terated	Mis-branded	Whole-some	Unwhole-some		
Root Beer.....	6777A	Jan. 8	Atlantic & Pacific Tea Co.....	Atlantic & Pacific Tea Co.....	Chittenden Co.	1						
Olive Oil.....	68180A	Jan. 13			Burlington...	1						
Oleomargarin.....	68824A	Jan. 30			"	1						
Chittenden County Total.....	Total.....					2			1			3
Tinct. Iodine.....	68028A	Jan. 11	Abraham's Drug Co., West St.....		Rutland Co.	1						
Camphorated Oil.....	68029A	"	"		Rutland	1						
Ess. Peppermint.....	68030A	"	"		"	1						
Spts. Camphor.....	68026A	"	"		"	1						
Sweet Spts. Nitre.....	68027A	"	Abraham's Drug Co., Merchants' Row.....		"	1				2.6 % Ethyl Nitrite.		
Spts. Camphor.....	68005A	"			"	1				2.5 % Ethyl Nitrite.		
Spts. Camphor.....	68006A	"	"		"	1						
Ess. Spearmint.....	68002A	"	"		"	1						
Ess. Peppermint.....	68007A	"	"		"	1						
Ess. Anise.....	67987A	"	"		"	1						
Tinct. Iron Chloride.....	68004A	"	"		"	1						
Dilute Phosphoric Acid.....	68001A	"	"		"	1						
Fowler's Solution.....	68003A	"	"		"	1				68 % of required Arsenic Trioxide		
Tinct. Iodine.....	68000A	"	E. G. McClellan & Co.....		"	1				Low in Potass. Iodide.		
Spts. Camphor.....	68014A	"	"		"	1						
Ess. Peppermint.....	68013A	"	"		"	1						
Sweet Spts. Nitre.....	68015A	"	"		"	1						
Spts. Camphor.....	68012A	"	"		"	1						
Spts. Camphor.....	68011A	"	L. A. Miner.....		"	1						
Spts. Camphor.....	68008A	"	"		"	1						
Ess. Anise.....	68010A	"	"		"	1						
Ess. Peppermint.....	68009A	"	"		"	1						
Ess. Peppermint.....	68024A	"	Geo. E. Lassar.....		"	1						

MEDICO-LEGAL CASES

SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM NOVEMBER 1, 1916, TO FEBRUARY 1, 1917.

Lab- oratory Number	Date Rec'd.	Town	Material	Examined for	Result
ADDISON COUNTY					
64094A	Nov.	2 Weybridge.	Autopsy.	Cause of death.	Traumatic hemorrhage of lungs
68853A	Dec.	18 Middlebury.	Autopsy.	"	Suffocation (accidental)
68854A	"	"	Stomach contents.	Poison.	Negative
68855A	"	"	Urine.	"	"
68856A	"	"	Viscera.	"	"
68857A	"	"	Milk.	"	"
68858A	"	"	Cider.	"	6 1/4 % Ethyl alcohol
68859A	"	"	Fluid.	Identification.	Gin
68860A	"	"	Clear fluid.	Poison.	Negative
68861A	"	"	Clear fluid.	"	"
68862A	"	"	Charred bottle.	Poison.	Not able to determine
CALEDONIA COUNTY					
65284A	Nov.	21 Lyndon Center.	Cow's stomach.	Poison.	Pending
CHITTENDEN COUNTY					
67444A	Dec.	2 Burlington.	Autopsy.	Cause of death.	Cerebral hemorrhage
67446A	"	"	Tissue.	Evidence.	Infected
66569A	Dec.	12 Winoski.	Autopsy.	Cause of death.	Hemorrhage of lungs and liver (accidental trauma)
66570A	"	"	Urine and stomach contents.	Alcohol.	Present in stomach; not in urine
Essex County					
64602A	Nov.	9 Island Pond.	Autopsy.	Cause of death.	Case pending
64603A	"	"	Stomach contents.	Alcohol.	"
64604A	"	"	Urine.	"	"
64605A	"	"	Bullets.	Identification.	"
64606A	"	"	Clothing.	Evidence.	"
ORLEANS COUNTY					
64607A	Nov.	9 Barton.	Cow's stomach.	Poison.	"
RUTLAND COUNTY					
65931A	Nov.	30 Rutland.	Autopsy.	Cause of death.	Peritonitis following appendicitis
68820A	Jan.	29	Viscera of deer.	Poison.	Not completed
WASHINGTON COUNTY					
65804A	Nov.	28 Barre.	Autopsy.	Cause of death.	Bullet wound in heart, self-inflicted
65805A	"	"	Stomach contents and urine.	Alcohol.	Negative
65806A	"	"	Bullet and cartridges.	Identification.	Steel jacketed .32
65807A	"	"	Clothing.	Inspection.	Burns and powder marks show close proximity of gun
68754A	Jan.	29	Uterine curettings.	Evidence.	Not completed
Total 29					



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BULLETIN

OF THE

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BRATTLEBORO, VT.
1917

DANGERS AND CONTROL OF SUMMER CAMPS

BY DR. PETER H. BRYCE, CHIEF MEDICAL OFFICER,

DEPARTMENT OF INTERIOR, OTTAWA, CANADA

With the growing wealth and the realization of the importance of physical health and mental change on the part of our people, the evolution of our summer resorts has followed as a logical result of the peoples' holiday.

There are all sorts of people and all sorts of summer resorts and in keeping with the anomaly of things the people who need them least visit them most, even if they do not get the most out of them. They are cheap and high priced. They are both restful and scenes of exhaustion and dissipation of energy. They comprise woodland rambles, mountain climbs, canoeing through labyrinths and of inland streams and lakes, farm houses, lakeside resorts and seaside palaces. For practical purposes, however, they may be divided into (a) farm houses, (b) river and lakeside cottages, and (c) seaside resorts, all having much in common, but each having problems and dangers as well as advantages of its own.

The problems which as Health Officers we have to deal with relate, however, especially to the protection against outbreaks of disease, hence I shall leave for the consideration of those better equipped and more disposed to deal with them the aesthetic, sentimental and moral problems surrounding them. Our problems are essentially those associated with the aggregation of a number of human units on the same location during the summer months and have to do with the results of similar aggregations elsewhere whether of great cities or of men gathered together in army camps, whether in Belgium or the Dardanelles.

They resolve themselves into three classes (a) supervision of foods and drinks; (b) disposal of excreta; (c) control of communicable diseases.

1. SUPERVISION OF FOODS AND DRINKS.—Undoubtedly the greatest danger to health follows the taking of food and drink infected notably with the germs of typhoid, and diarrhoeal diseases. We may be quite sure that at farm houses and rural resorts the vegetables and meat supply are usually obtained from local sources; but they are not always handled by persons engaged in the work all the year round and the meat, especially, will commonly not be under inspection. If the farm well is all right and no typhoid cases exist in the family of handlers of food supplies the dangers from this source are minimized. In those resorts where, as on Lake George, supply boats visit the cottages and hotels, the food supplies usually are brought from the large city dealer and have the virtues and often the defects from such sources. When the resorts are lakeside

and seaside and are organized municipalities with regular shops, we have the same advantages and disadvantages but in all such old resorts the food supply, except the milk and ice cream, may be considered relatively safe.

In regard to the water supply the history of summer resorts everywhere in America until within recent years has been very important. City physicians everywhere, cynically awaited the return of their flock from their summer resorts with their annual holiday typhoid due to polluted wells or some cheap water supply from a local creek. When the resorts are fashionable and often populous towns, the water supply is commonly safe, since if polluted the town is soon commercially discredited. Hence the economic side of public health plays its direct part and becomes the most rapid and effective of all educators in public health.

2. COMMUNICABLE DISEASES.—These, as a rule, are introduced into summer resorts by children who have been sent on their physician's advice for a change of air. Notably is this the case of whooping-cough which undoubtedly is much benefited by an outdoor life. Fortunately, the economic factor enters in here again and boardinghouse keepers will, in self defence, insist on such leaving the house so that the cottage or tent becomes the logical resource of the infected family with best results. Tuberculosis cases have also become a feature in certain types of resorts, but today the knowledge is so general of its fresh air treatment that such commonly have their own separate tent or bungalow and seldom are a menace to the general public or an unpleasant feature in the general pleasure of the holiday crowd.

3. SEWAGE AND GARBAGE DISPOSAL.—Undoubtedly, these create the prime influences affecting the sanitary surroundings of summer resorts. The ordinary farmer of the past seldom recognized the need or adequately provided means for dealing with accumulation of refuse. The swill barrel at the kitchen door was considered a necessity and a foul smelling common drain was the receptacle of whatever kitchen water was not thrown directly on the ground outside. The result of organic decomposition with its smell was accompanied by a swarm of flies which travelled from kitchen to pig pen and back again with rhythmic regularity and few thought it anything unusual or deemed it insanitary or avoidable.

Of course to these conditions was added the common outdoor privy with its not infrequent soakage toward the house well. Much has been suffered from these abominations, but such had one element of safety inasmuch as they were largely on the surface and exposed to the air. The nuisance was recognized and the dangers minimized by the disinfecting influences of the sun's rays.

When, however, I recall the loose board cover of the ordinary farm well whereon trod the feet of men and women of the household, tracking filth from the barn yard as the milk cans were brought to be cooled and

when I think of the ordinary trough supplied to the fowls for water or in its stead a pool fed by the dripping water from the pump spout flowing over the dirty board, I am inclined to cry out as Job's servant did; "The Sabeans fell upon them and I am only escaped alone to tell thee."

Most, indeed, of the older physicians will remember instantly as I can where, during a single summer, half or more of the stalwart sons and daughters of some farmer were laid away, as an old grave digger friend of mine used to discuss it, dead from virulent typhoid, begun with the well and matured in the privy and milk house. Unfortunately, at some of these old farm houses summer visitors gathered in numbers and the dangers multiplied as the area of infection extended.

During twenty-two years' inspection of a population of over two millions I had too many opportunities for studying just such outbreaks.

The next most natural type of danger was when the summer resort hotel attempted to put on airs by establishing a water supply system, commonly by a wind mill and pipe leading to the lake or river while at the same time a sewerage system was constructed with closets, baths and a sewer in the same lake or river, often only a hundred feet away from the water intake pipe. Similarly on some small stream cottages would be built along the banks and each in blissful ignorance of results would pour sewerage into the stream endangering the water supply of the residents below. The same stream, likewise, often became the receptacle of the floor wash or refuse from a slaughter house on its bank forced outside the village because of its foulness, while not infrequently kitchen refuse was dumped at midnight as an easy method of disposal into the same stream. And so we might go on illustrating how sanitary evils began and accumulated, primarily because of a lack of knowledge of any danger and later because of lack of knowledge of how to supply adequate machinery for remedying such.

MEASURES FOR SOLVING THE PROBLEMS

We may now turn to the solution of our problems. Did I not know from experience the difficulties of many local health officers I would say that the remedies are so easy that the whole question becomes one of enforcing regulations, but I learned many years ago that what was easy for one medical officer in his community seemed difficult through local ignorance or professional jealousy in another. I attended, in May last, the meeting of the Health Officers of Ontario and recall the very valuable paper by a successful town Health Officer in which, after illustrating the several agencies through which he carried out reform, he summed up with the advice "Lead, don't drive." I think that within proper limits the advice is sound. The primary thing is education, and I fancy that at summer resorts the primary lesson to be taught is that of an enlightened self interest and second, an intelligent town interest. Civic patriotism in an abstract way can always be encouraged, while the moral plane

upon which a community lives becomes, after all, the best measure of social and business success.

We may now deal with some details in the solution of our problem:

THE HOUSE.—It must have some adequate equipment and the two first I would mention are (a) an adequate refrigerator and ice supply, (b) fly screens on all the windows, but especially those of the kitchen and dining room. The construction of an ice house is so cheap and easy that no house-keeping summer visitors can be excused for not having it. When there is no public ice supply a few trimmed poles or logs on the floor for drainage, a simple frame of rough boards and scantling for studding and a gable roof shingled but open at the ends constitute the essentials. Then blocks of clear ice from the nearest pond placed on the floor surrounded with a foot of sawdust two feet on top complete the whole. The principles involved are, adequate drainage with dead air space all round and dry sawdust on top. With regard to fly screens such may be well placed on every window and door but must be put on kitchen and dining room since I have never known premises so perfect as to be wholly free from flies, though possibly we would say in our housekeeping pride that they must have bred in our neighbor's refuse heap.

Having provided for conserving the food cool and clean we have largely overcome the house difficulties except as regards the source and quality of the food. What is really essential is that similar provisions to those mentioned must be extended to the farms and provision stores. The farm supplying milk must be inspected to insure safe water supply and that no cases of communicable diseases are present to be transmitted through the milk and food handlers. Equally necessary is it that several compartments be provided for cold storage of the different classes of foods.

KITCHEN GARBAGE.—The presence of this material is, of course, constant and must be dealt with regularly. Assuming that houses have at least small gardens nothing is simpler than dealing with the garbage. Situated conveniently within or just outside the kitchen there will be placed a galvanized iron receptacle within which is placed the pan containing the refuse vegetables, it having a perforated bottom and supported near the rim of the receptacle. Into this the potato peelings and other waste are all placed and covered with a hinged lid. Every morning this pan is removed and the refuse spaded into a trench in the garden in the same way as manure would be. In this way it is placed where the menace from its harboring flies or being a nuisance is removed. At the end of a week or fortnight the area dug over can profitably be seeded. What must be taught from the beginning is that no garbage must be exposed above ground longer than twenty-four hours since it will ferment and create a nuisance, but if placed when moist in the garden this moisture promotes decomposition and its benefits as a fertilizer. Should there be

no septic tank to receive the waste water from the kitchen the galvanized iron receptacle should be made with a plug in the bottom so that it can be discharged intermittently into a series of level sub-service tiles. I wish to make it clear that burning the garbage is unnecessary, clumsy, takes time and results in a nuisance and is a waste of valuable fertilizer material, but should in any case a garden not be convenient a length of stovepipe may be arranged with a drawer into which the garbage is placed and dried and subsequently burned in the stove.

DISPOSAL OF EXCRETA.—We would like to believe that all boarding houses and hotels and summer resorts today are supplied with a pressure water supply system which would be available for supplying baths, closets and kitchens. Such a supply assists so greatly in house keeping and in promoting cleanliness that economy, as well as esthetics, demands its installation. Since, however, outdoor closets may now and then be found necessary it is essential that such be constructed and managed free from nuisance. Much has been written and described about fly proof closets but simplicity with efficiency is easily obtained by insisting on the use of the dry system of disposal. This means simply the supply of two or more galvanized receptacles 18 by 18 inches, with handle, placed beneath the closet seat and set on two strips of wood for easy removal, either from the front or rear. A box of dry sawdust, leaf mold or peat, or a hopper filled with the same are placed within the closet for regular use to absorb moisture and prevent decomposition. The removal of the night soil twice or thrice weekly and the digging of it into a safe place in the ground solves the problem of disposal by the dry system.

But often the house may be located on a rocky site thereby creating a local difficulty. In such a case as this special provision has to be made. Every year sees the problem increase with the ever increasing number of visitors and more extended premises. Hence we must find some more complete and permanent scheme which will in practice be as safe as the sewerage system of our towns. It is nearly thirty years since I had to deal with this problem and solved it in my suburban home and I have since gradually extended it to all the chief health resorts in Canada. It is almost twenty years ago since I made a complete inspection of the numerous hotels and cottages in our Muskoka Lake country since here and there had been outbreaks of typhoid or diarrhoeal in previous summers. I endeavored to judge of the financial ability of the owner of each premises and ordered improvements in keeping therewith under penalty of blacklisting their house. On the whole, I found a very general desire to comply with reasonable requirements. The water supply was commonly taken from the lakes and it was essential that this be kept free from pollution with sewage. The system as a whole may be divided into the usual three parts; some means for supplying a pressure water system; simple house plumbing; and a septic tank and sub-service tile system for dealing with the case. Regarding the water supply this is usually provided by a

wind-mill, gasoline engine or hot air engine and sometimes, even today, by an electric pump. The house plumbing provides bath rooms for the water closets, slop sinks, kitchen sinks, etc., all trapped and connected with a soil pipe leading to the septic tank.

The septic tank is conveniently located, preferably close to the house, both for the sake of economy, ventilation and obtaining a proper fall to the system of sub-service tiles. Sometimes, however, the area ground for this purpose is reached by a glazed tile pipe leading to the tank placed near the sewage disposal bed. The following particulars may be given regarding the septic tank and tile system:

- (a) The area of septic tank containing two compartments approximately the same size varies from 6 x 3 x 3 feet, to one as large as 20 x 12 x 4 feet as the inmates increase from 10 to 400.
- (b) The walls and floor of the tank are made of concrete 8 inches thick, made of sharp sand and cement in proportions of 4 to 1.
- (c) The partition divides the oblong tank through which near the top is an over-flow pipe leading from near the bottom of the septic tank to near the top of the partition.
- (d) The house pipe enters the septic tank just beneath the top some four inches higher than the over-flow pipe into the second tank.
- (e) A syphon of modern design is set in the floor of the second compartment to discharge intermittently whenever the water rises to a definite height varying from thirty inches with a three-inch syphon to four feet with a five-inch syphon is required.
- (f) The head acquired by the height of water in the tank forces the sewage when the syphon discharges under a head into a system of four-inch field tiles laid twelve inches beneath the surface of a prepared level area preferably of sand or gravel. The number of tiles is estimated to hold the total discharge of the tank and necessarily are laid practically on a level. When it is remembered that the four-inch tile just holds half an imperial gallon the number required is easily estimated.
- (g) The tank should have an air hole of 18 inches square leading to each compartment which is covered by a hollow top of reinforced concrete.
- (h) The area for the tiles need not, where the soil is limited, be large as where there is a rocky or clay bottom, and gravel or cinders may well be used to make up a filter bed of three or four feet in depth on the top of an impervious surface with a deep tile or two for drainage.
- (i) The area of such a bed may be estimated when it is considered that in a bed 50 x 100 feet square with a glazed tile header having offsets at every two feet 2500 feet of tile can be laid, which will receive 1250 gallons of sewage or with two discharges daily will handle 2500 gallons or 25 gallons per head for a house-

hold of one hundred. This amount is much beyond the ordinary needs where most of the life is spent on the water where the bathing beaches are.

Thus equipped with facilities for dealing with food, garbage and excreta we have supplied the necessary means for keeping individual premises and larger resorts sanitary.

SEWAGE DISPOSAL FOR SMALL VILLAGES

PROF. J. W. VOTEY, ENGINEER, STATE BOARD OF HEALTH

We have, recently, been looking up the public water supply systems of the state including in this list all systems, whether public or privately owned, that supply ten or more families. We have received reports from approximately 125 such systems. Nearly all of the larger villages of the state are now supplied with some form of water system while there are many systems in service in the smaller villages often supplying but a few families. Each year sees some new supplies added to the list.

Coincident with the construction of these water systems, there has been an introduction of plumbing conveniences in the buildings supplied so that at the present time the houses which were formerly equipped with nothing more elaborate in plumbing than a sink drain now have a more or less complete modern system of plumbing. The problem that has immediately presented itself in connection with the introduction of the water into a building has been, what shall be done with the sewage from the premises. In many cases, the individual owner, where sufficient land has been available has attempted to take care of the sewage on his own premises by means of a cesspool of some form. Often a few neighbors have joined together and built a common sewer. In other cases a private company has been formed which has attempted to care for the sewage of a portion of the village, while in still other cases it has been possible to get combined action and have a public sewer or system of sewers introduced into the village. In seeking for outlets for these sewers they have, naturally, considered the cost first and have attempted to get out of the difficulty in the cheapest manner possible. Wherever a stream has been available, the sewer has been connected with the stream at the nearest possible point. In many cases, no stream being at hand, the sewage has been discharged directly upon the surface of the ground, often not far from occupied buildings, or public highways.

This lack of proper consideration of the results of so disposing of the sewage has very naturally led to many undesirable situations from a sanitary standpoint. The introduction of the sewage into the ground through cesspools has, in some cases, endangered the water supply of other residents of the village through the pollution of springs or wells. Where the sewage has been discharged into streams, these streams

have, in many cases, been too small to care for the sewage without creating a nuisance. The discharge of sewage upon the surface of the ground has in all cases produced an unsanitary condition and has been a frequent cause of complaint.

In considering the possible ways for safely caring for the sewage of any village, there are several questions that arise. First, what is the character of the sewage from the village? Is it the ordinary domestic sewage from the houses of the village, does it include street drainage, and does it also include the waste products from industries of such a character that may seriously interfere with the treatment of the sewage? Second, what is to be done with the final effluent of any method of treatment that may be adopted? Some disposition must be made of the treated sewage, no matter what form of treatment is adopted. The liquid must finally find its way to the natural water courses of the district. Third, it is necessary to ascertain the quantity of sewage that the village is furnishing and what allowance should be made for future growth.

If the sewage is to be treated in any way, it is desirable that all storm water, such as the drainage from the streets and the roofs of the buildings should be disposed of separately in order to reduce the expense.

There are certain industries, even in our own state, the waste products of which, as discharged in the sewage, may have a controlling effect upon the method of treatment to be adopted. For example, the common creamery wastes require different treatment from ordinary domestic sewage. The creamery sewage contains a large amount of matter in suspension that will rapidly undergo decomposition and if the sewage is disposed of upon the surface of the ground, it is sure to give rise to complaints; the sewage is often strongly acid from the acid used in testing which interferes with the bacterial purification of the sewage. If the creamery wastes form a large part of the sewage of any village, it may be desirable to treat such wastes separately or, at least, neutralize the acidity before discharging the wastes into the common sewers.

Other industries, such as the tanneries, paper and pulp mills, iron and machine shops, gas works, woolen mills, canning factories and those preparing food products, produce wastes that have a decided effect in determining the method of treatment to be adopted. It is, therefore, necessary to know the character of the sewage before determining the method of treatment to be adopted as it is impossible to use a standard form of treatment for all villages.

In considering what may be done with the final effluent of any process of treatment that may be adopted, there comes up, at once, the question of the degree of purification that may be required by the disposal of this effluent. This brings up, also, the question of stream pollution and how far we are justified in discharging sewage in the crude or treated form into any of the streams. This is a subject to be dealt with by itself and only a brief reference to it can be given here. If we propose to dis-

charge sewage into a stream that is used as a source of water supply, it is necessary that the treatment to be adopted should be that that will give the highest degree of purification of the sewage. On the other hand, if we are to discharge the sewage into the stream with a large volume of flow and which is not used in any way as a source of water supply, it may be necessary to only partially treat the sewage.

In Vermont, there is little or no use made of the streams of the state as sources of public water supplies below the occupied portions of the valley through which the streams flow. With the present knowledge of the intimate relation between water supply and disease, and the ease with which typhoid fever may be spread by means of the water supply, it is not considered safe to use the water from any stream unless the water is passed through some process of purification. Vermont is so well supplied with possible sources of water that it has not been necessary to take the water from the polluted sections of the streams. The water supplies that are taken from the streams are taken from those portions of the stream above habitations where the streams flow in unpolluted condition.

All of the larger Vermont streams having villages located on the banks are, at the present time, receiving more or less sewage from such villages. How far we are justified in removing crude or treated sewage from such streams is still an open question. If all of the sewage were removed from our larger streams, the water would still be unfit to drink in these streams owing to the pollution from industries located directly on the streams; from the storm wash; from the farming premises, and the drainage from the highways and from the various accidental chances for pollution which a stream has in passing through occupied watersheds. If it is unnecessary to remove the sewage from streams to preserve such streams as sources of water supply, how far are we justified in preserving them from pollution for other reasons? There are still other objections to the pollution of the stream. The streams are still serving the purpose of general water supply, (not domestic), for the farming sections through which they pass and are the sources of supply for various industries located on their banks and they still, in the summer, furnish the only opportunity which the country and village boy has for swimming and bathing. There are, therefore, certain practical needs for keeping the streams in an unpolluted condition aside from sentimental reasons. Before leaving this question it might be well to state that the method of disposing of sewage by discharging it into a stream or standing body of water, known as the method of disposal by dilution, is a thoroughly scientific and safe one for certain situations if applied under proper control. The method, however, is commonly abused by overloading the stream with a larger portion of sewage than the stream, at low water stage, is able to safely take care of.

There are various possible methods of treating sewage, the selection depending upon local conditions as to the character of the sewage and the

degree of purification required. In rare cases, simple screening of the sewage may be sufficient to remove objectionable conditions. Usually some form of tank treatment for sedimentation is the first stage in the process of sewage purification. It is a simple and often inexpensive matter to run the sewage into a tank of some form where a large percentage of the matter in suspension can be removed and certain changes in the character of the sewage secured. There are two general forms of this tank treatment. In one the sewage is retained for a comparatively short time and the resulting sediment or sludge removed at frequent intervals. This is a plain settling tank and the action in the tank is, as the name indicates, nothing more than the settling out of the heavier matter in suspension. In the second form of the tank, the sewage is retained in the tank for a longer interval and the sludge is removed only after long periods, sometimes from one to three years. In this tank, septic action takes place and a certain percentage of the matter in the sewage is digested and changed to liquid and gas.

* A second form of sewage treatment is the process of aeration which means simply the handling of the sewage in such a manner as to furnish the greatest possible amount of oxygen for promoting bacterial action. This includes the various forms of the application of sewage to land. If the quantity of sewage is not large and land of a suitable character is available, we may be able to dispose of the sewage directly on the surface of the land only, however, through frequent change of the flow of the sewage into new areas. Winter conditions, however, restrict our use of land treatment in Vermont and to some extent some of the other processes of sewage treatment.

The most efficient means of treating the sewage, which we have at the present time and which has been in successful use in New England for a great many years, is that of intermittent filtration. This requires, under normal conditions, areas of sandy soil to which the sewage can be applied with no further preparation of the soil than underdraining and grading. There are two difficulties in using this method of treatment as the area of land required is somewhat large and severe winter conditions in this latitude interfere with the process by freezing the surface of the beds.

In the smaller villages where the population, as in many of our Vermont villages, is less than that of some of the public institutions, the sewage may be disposed of by the subsurface system where the sewage is applied to the land just under the surface of the ground. This method, where feasible, can be operated under winter conditions.

Tank treatment is often followed by treatment in what are known as contact beds, one of the processes of aeration. The contact bed is a water-tight open tank filled with broken stone, gravel or cinders of coarse size giving a percentage of voids from 40 to 50. The area required for this form of treatment is far less than in the intermittent filtration.

Still another form of treatment that requires a smaller area, even, than the contact bed and gives a higher degree of purification is that known as the sprinkling, percolating or trickling filter. In this method the bed is filled with a much coarser material than that used in the contact bed and the sewage, as the name of the process indicates, is sprayed onto the surface of the bed giving, by this treatment, a maximum amount of aeration or oxidation.

If the effluent from any of the forms of treatment is to be discharged into water that is used for drinking or for bathing purposes, the final treatment should be disinfection in order to destroy any possible disease germs. This disinfection is readily effected at slight expense by the use of hypochlorite of lime or liquid chlorine.

One important factor that is to be taken into account in establishing any system for the treatment of sewage is that a certain amount of attention is absolutely essential in order to keep the system in proper working order. It is very difficult in cases of a small village to secure the intelligent supervision that such a system requires. It is often taken for granted that a system once put in will take care of itself. Neglect of a properly designed and constructed system means, inevitably, results in an undesirable condition from the sanitary standpoint. It is, therefore, absolutely necessary that a system designed for one of these small villages must be as simple as possible and require the least amount of attention. This one factor, alone, rules out some of the processes of treatment.

Still another element that enters seriously into the matter is the cost question. Several of the processes of treatment in successful use out of Vermont are altogether too expensive for our small villages. The high first cost, with the cost of supervision, throws some of these systems beyond the reach of the small villages. It might be stated, also, in this connection, that the average village citizen fails to appreciate the necessity of this expense in connection with the disposal of sewage. He is more ready to expend money for a proper water supply than for a proper sewage disposal system.

In considering, now, the possible forms of treatment more in detail, we note first that for many of our Vermont villages tank treatment, alone, may be sufficient if there is a large stream into which the effluent can be discharged.

A settling or septic tank, in some form, offers, in many cases, the first or sole step in the processes of treatment. The common septic tank is nothing more than a water tight tank, usually built of concrete, which holds the flow of sewage from twelve to twenty-four hours during which time a large amount of the matter in suspension is deposited in the bottom of the tank and there undergoes decomposition, forming gas and liquid. Such a tank is usually baffled or arranged with one or more scum boards to prevent the grease or lighter matter from passing over into the effluent. It is absolutely necessary that the flow through the tank should be at a

very low velocity as indicated by the time interval in the tank. It is also essential that there be no disturbance of the contents of the tank at the point where the effluent is taken out. There is a popular impression that the effluent of a septic tank is purified sewage and is fit to be discharged directly into a stream or standing body of water used for drinking purposes. This is very far from being the case, as such an effluent is a dark colored, foul smelling liquid that will undergo further decomposition. It may, also, contain any disease germs that are in the crude sewage. If the effluent from this tank must be discharged into a stream used for drinking or bathing purposes, further treatment must follow. In some cases, disinfection of such effluent is all that is necessary. This is the treatment that is being given to the sewage at a number of the summer hotels in Vermont located along our lakes where the water, however, is not used for drinking purposes. This form of treatment is often, in such cases, the only possible combination, owing to the fact that these hotels are built at the water's edge on a rock foundation and the expense of pumping the sewage back on suitable land, where some other form of treatment might be used, is prohibitive. Fortunately, in all such cases, it has been possible to secure independent water supplies so that partial purification has been sufficient.

Where the highest degree of purification is to be secured by the tank treatment, a modified form of the septic tank, known as the two-story or Imhoff tank, must be used. This tank, as will be shown later in a diagram, separates the freshly flowing sewage from the gas produced by the digestion of the sludge and gives an effluent that is easier to treat by later processes. The only objection to the use of this modified tank is the greater expense involved in its construction. If the amount of sewage is not large, as would be the case in the smallest of our Vermont villages that now have public water supplies, the sewage can be handled by the subsurface method at less expense, both in the first cost and in supervision, than by any other method. Such a system consists, usually, of a plain settling tank, with an attached siphon chamber. From this the sewage is discharged into lines of ordinary tile laid just below the surface of the ground. Where the porous soil is available no preparation of the land is required. We are able to use this system sometimes in the more retentive soils by excavating a ditch to a depth of three to four feet and filling this ditch with coarse sand or gravel. This method, however, is not feasible for taking care of the sewage of a village, owing to the length of such ditch and the consequent expense that would be necessary.

The subsurface system will readily work through our winter conditions without interference by the frost, provided the distributing tiles are laid at a sufficient depth below the surface. In some cases, 12 inches is sufficient; in others, 18 might be required. This depends, also, upon whether the ground is cultivated or has a grass cover, as the depth of the frost varies with the surface conditions. Such systems are in operation at the present

time in Vermont in connection with private residences and some of the public institutions.

The contact bed and the sprinkling filter systems require more care in their design and operation than the tank method of treatment and are considerably more expensive. So far as the speaker knows, there are no such systems in operation in Vermont at the present time. It is something of a question as to how far their operation would be interfered with by our severe winter conditions, although they are successfully used in Massachusetts at temperatures of 10 degrees below zero. I believe that it might be necessary to cover the beds or tanks to protect them during the severest of our winter conditions. If this precaution is taken, I think it would be possible to operate either one or both of these methods in Vermont.

In some localities, where land of a porous character is not available for intermittent filter beds, it might still be possible to use this method for the purification of the sewage by giving the sewage preliminary tank treatment. This reduces the area of the filter bed, as it can be operated at a more rapid rate and makes it possible, sometimes, to prepare an artificial bed, if material for filling such a bed is within reasonable hauling distance. If, however, a filter bed in any form is used in Vermont, care is necessary to keep it in successful operation during the winter conditions. Deep trenching of the surface of the bed, in order to secure a snow or ice cover, would certainly be necessary and possibly some additional cover might have to be used to prevent the surface of the beds closing with frost.

No system of sewage disposal should be installed that has not been designed by a competent engineer familiar with this special class of work. When a properly designed system has been constructed, it is absolutely essential for its successful operation that it be carefully looked after by an interested and responsible official. It is often possible to combine this work with that of superintendent of the water system with good results.

NUISANCES AND THEIR ABATEMENT

DR. A. H. WRIGHT, HEALTH OFFICER, WILMINGTON

Webster says a nuisance is anything offensive, injurious, vexatious, or annoying.

DIVISIONS

For the purpose of this paper I shall divide nuisances into two groups. First, common nuisances, which include sink drains, cesspools, privy vaults, cow yards, dumps, dead animals. These are the nuisances the health officer is most commonly called upon to attend to. They are found in the small towns and villages, and sometimes in the larger ones. The second group includes the condemning of dwelling houses, school houses, public

buildings, smoke and gases from manufacturing plants. In this group we are seldom called upon, but in the larger villages and cities it is often very important.

The sink drain is a common nuisance, especially in small villages where there is no water system. It seemed to be a common practice in the old-fashioned home to run a piece of lead pipe from the sink through the wall and onto the ground. In the winter months ice and snow were often formed to the depth of several feet, composed mostly of dish water and particles of food left from the table. In the spring, the warm rays of the sun melted the ice and we then found one of the best breeding places for germs, a feeding ground for rats, an ideal home for mosquitoes; and when the wind was in the right direction odors came into the kitchen that were anything but a tonic for the evening meal. From my own experience I have found the best method to relieve this condition is to pipe the drain at least five hundred feet away from the house on lower ground; if possible, into gravel soil and into a large cesspool built of cement, the bottom open, and well covered. Several times a year a bushel of lime should be put into it. I have seen several cesspools of this kind and they seem to be successful.

In this same class we find the country and village privy vault. It is very easy to get the whole family to agree with you that this is a real nuisance, but when you begin to talk about a change how often you will find them perfectly indifferent. Many times I have visited homes professionally and found vaults that have not been cleaned out in a year and often longer. When we stop to think of the many intestinal diseases we have to contend with at the present time, what can be the result of a vault uncleaned for a year, twenty-five feet from the kitchen, where the daily food is cooked? When sufficient water cannot be obtained to have a flush closet, I believe the best method is a plank box vault, a tight cover on each seat, on hinges, a small pipe extending from the vault to the roof for ventilation. In the end of the box is a large ring, so a horse can be hitched on and the box drawn down on the meadow and contents buried at least once a week or as often as needed, according to use. This method is within the means of every family, and I believe there is no excuse for maintaining a nuisance of this kind.

Section 70 of the Massachusetts laws, 1915, reads: "No privy vault shall be constructed upon premises which are connected with a public or private sewer, or which abut on a public or private street, court or passageway in which there is a public sewer opposite thereto, without permission in writing having first been obtained from the board of health of such a town or city. And if in the opinion of the said board a privy vault so situated is injurious to the public health, it shall be declared a public nuisance and shall forbid its continuance."

Years ago the cow yard and pig pen were a source of trouble for the health officer and neighbors, but with the licensing of dairies to distribute

milk from house to house I do not believe as many cows and pigs are kept within the village limits. During the cold months these things give little trouble, but during the warm months I believe the yards should be cleaned every day, and the pig pen should be at least 500 feet away from the dwelling and kept in a clean condition all the time. These things are not only a source of bad odors, but a good place to breed flies.

Dr. Hemingway tells us that formerly a manure pile was considered a nuisance if it were large enough, or if it were sufficiently near so that it could be smelled, but now we know that the effluvia arising from the pile is not injurious to health, but the manure piles are breeders of flies and rats. Flies and rats we know to be carriers of disease, so the manure pile is a nuisance in proportion as it develops the pests. A newly hatched fly can fly five or six hundred feet, and with the aid of the wind can travel much farther, and where, as formerly, a pile of manure was only a private nuisance, and within a limited distance, it must now be recognized as a public nuisance at any point within 600 feet of a dwelling. When the principal objection to a manure pile was its effluvia, it was a nuisance largely in proportion to its size, for the larger it was and the more rapidly it accumulated, the more did it develop fermentative action, producing the heat and gases. However, in a rapidly increasing pile, the outside is too fresh for the development of the larvae of the fly, and the interior of the pile is so hot that it burns and kills them. Then the little fly breeding pile is a nuisance though it may not offend the sight or nostril.

In some localities where streams run through farms and especially near barns, it seems to be a common practice to throw dead animals into the streams. This practice cannot be condemned too quickly. Animals of this kind will float down the stream for miles, and when the water goes down pieces of decayed matter will stick to rocks and roots exposed to the sun, and will soon produce gases of an offensive nature. A polluted stream is unfit for cattle to drink in, for people to bathe in, or for any domestic use. There are instances in this country where dead animals have been thrown into streams, and the same caused epidemics in cities many miles away. I have found it very hard to prosecute cases of this kind as dead animals are very hard to identify, and, as a rule, one neighbor will not inform on another, because they do not care to have trouble.

Another common nuisance is the dish cloth. I am glad that most of our up-to-date hotels have installed the modern sanitary dish washer and drier, which eliminates the unsanitary cloth altogether. It is strange that so many of our Vermont housekeepers will take so much pride in a clean kitchen and use a dish cloth, usually wrung out and placed over the pan to dry ready for the next meal. If you will tear off a small piece of the cloth and put it under a microscope you will be surprised to see the great variety of germs there. Where it is possible, I believe the modern dish washer and drier should be used, but if not convenient it should be boiled every day, and, if possible, dried in the sun, and at the end of

the week should be replaced with a new one. We should be sure the old one is burned or it may find its way into the rag bag, to be used in house cleaning time.

The refrigerator, unless kept in a clean condition, is also a domestic nuisance. At least twice a week it should be washed and aired thoroughly at times when new ice is put in and once in ten days should be placed where the rays of sun will reach the inside, all food being first removed.

There is one more nuisance I wish to speak of, and this is perhaps the most important of all. The act of spitting has been known since the early ages. In ancient history we read of instances where women and men chewed weeds and spit it into the eyes of their enemies, the nature of this weed being such as to cause intense smarting and later inflammation. In this way they sought revenge. These peculiar acts have passed as civilization advanced, but the act of common spitting in public places and on the streets is still with us. The act of spitting is a habit and not a necessity, even among smokers. If you watch a crowd of men standing on a street corner after the day's work is done, one will begin to expectorate and in a few moments all will be doing the same thing, whether they are smoking or chewing, or not either. It is true a man cannot chew tobacco for any length of time without spitting, but if they must continue a habit which is so dangerous to the public health we shall demand they do so in the roads or other places than the sidewalks or public halls where people have a perfect right to be, without endangering themselves or others. Section 5899 of the public health laws reads: "A person who expectorates or spits on a public side-walk or in a public building, except in receptacles provided for that purpose, shall be fined not more than ten dollars for each offense. A suitable notice shall be posted in all buildings." There is also another section covering railroads, waiting rooms, and stations. I cannot recall the state, but a short time ago I read of a campaign carried on by a society of women who were interested in public health. The object of the campaign was to teach men the danger of contracting tuberculosis and other diseases from the spitting habit, also the need of the saliva in digestion. Public lectures were held illustrated by the moving picture machine.

In the nuisances mentioned in group two, perhaps the most common one is the condemning of dwelling houses. At the present time when American labor is so scarce, the manufacturer is obliged to employ foreign labor, and, as you know, they will rent the abandoned houses in the outskirts of the village or city, unless houses are provided by the company. Here is a problem that is hard to deal with. I do not believe we should allow families to occupy these houses, especially if they have been vacant for many months, until they have been inspected and, if necessary, fumigated. The Italian people seem to be more susceptible to infectious and contagious diseases than other nationalities in my experience, and when a family of eight or ten people live in a small five- or six-room

house, the conditions cannot be very good. In one of the houses owned by a manufacturing company in our town we had several cases of typhoid every year for some time. I fumigated this house several times but the cases continued to develop. Finally, I took a few laboring men, and after the family had moved out for a few days I again fumigated, using one pound of potassium permanganate and one quart of formaldehyde. We then papered and painted every room in the house, then removed everything from the cellar, painted a thick coat of lime on the ceiling walls, and bottom, and continued the same process for several feet outside the building. I have never had a case of typhoid in that building since that time.

One of the interesting laws is that recently passed by the United States Public Health Service declaring weeds a nuisance. Section one reads: "All weeds growing upon the streets or sidewalks or upon private property within municipalities, which bear seeds of a wingy or downy nature or attain such a large growth as to become a fire menace when dry, or which are otherwise noxious or dangerous, may be declared a nuisance by the legislative body of any municipality, and thereafter abated as in this act provided. Whenever any such weeds are growing upon any street or sidewalk or private property the legislative body of any municipality may, by resolution, declare the same to be a public nuisance. Said resolution shall refer to the street by the name it is commonly known, and describe the property upon which or in front of which said nuisance exists by giving the lot and block number of the same according to the official map of such municipality used for describing property on tax bills; and no other description shall be necessary. Any number of streets, sidewalks or parcels of property may be included in one and the same resolution." And continuing is given a form of the notice.

ABATEMENT OF NUISANCES

When the health officer receives a notice that a nuisance exists, he first makes an investigation, and if, in his opinion, the condition is one that requires immediate action, the matter should be explained to the owner of the property with a request that he remove it at once. Usually it will be done without any further notice or action, but when they refuse to act, and treat the notice indifferently, then I always call a meeting of the selectmen. We discuss the complaint from all sides, then send a written notice signed by all the selectmen and health officer. It is very important that all the selectmen sign the notice as we never know how far these conditions may extend, and the section in the laws of 1910, which declares a health officer shall not order the abatement of nuisances, or the destruction of things infected with or exposed to contagious disease and shall not incur expense to the town or city in the furnishing of medical treatment and care of sick persons except with the consent and approval of the selectmen of such town or the alderman of such city,

makes it very essential to have all the signatures. I believe the following notice a practical one:

"Dear sir: The board of health desires to call your attention to a nuisance existing on your property at such a place. Will you please abate this nuisance within one week from this date. Kindly acknowledge this notice."

If at the end of a week the notice has been ineffectual, the following one is sent.

"Dear sir: A week ago notice was sent to you regarding a nuisance on your property. We note that no action has been taken in this matter. You are hereby ordered to abate said nuisance at your own expense within one week of the date of this notice, otherwise you will be proceeded against according to law." Signed by full board.

This notice should be served by the constable or sheriff and a copy returned. If at the end of a week no action is taken, then we make the arrest and bring the whole matter before the court. Sometimes a complaint is made to the health officer over the phone. I believe it is very essential to get the person's name, as often when the matter is taken up by him, they will deny any complaint was made.

It is true the statute gives the board of health a good deal of power in abating nuisances, and in a great many cases this power must be used, but after all is said and done, the most successful health officer is the man who uses the most tact and diplomacy. When we enter a man's house to ask him to abate a nuisance, he is very apt to have a chip on his shoulder, and a word spoken at the wrong time or place will often make him your enemy as well as an expense to the town. When a politician starts out to win converts for his cause, he is armed with a box of cigars (poor) and all the good stories he can hear and buy. He knows he will need these things with some classes of people, and so in our business of abating nuisances we need all of the agencies known to keep the waters smooth.

Why, Good Morning, Mrs. Dill, this is a great surprise,
Come right in, the sight of you is real good for sore eyes.
I hope you 'scuse the cluttered house, it's anything but slick,
I've been tied up here to home, we've all of us been sick.
That pesky health officer had his card hung on the door
For ages, it seemed to me, eight or nine weeks or more—
Just took it off last night, and not a soul could come anigh
And we quarantined all this time, now how was that for Hi?
He'd come peeking 'round and find no end of fault
And giving off his orders, 'bout time he called a halt.
He said to burn with lime, rotten apples, cabbages, and such,
But do you s'pose Jim's going to do it. I guess not—not much.
What the hogs and cattle wouldn't eat, and things not fit to cook

Jim and the girls have carted out and dumped them in the brook.
Now he's forbid us doing that, for it pollutes the stream
Where cattle drink, now such rubbish did you ever dream?

Jim says when he cleans the barn and stables and washes out the pig's sty
That agent can stick the whole concern in the northeast corner of his eye.
But I do wish he'd clean the stables and the stable yards,
The pails and cans are something fierce, and so my work retards.
Before I strain the milk, I must clean them on the grass
Or use the hose upon them, things have come to such a pass.
And the doctor said the fever had been traced to milk we sold,
Said he had it analyzed or something, tho' that statement is rather bold.
It cuts us off from selling milk or even butter where it's known
And the farm is heavy mortgaged, and the stock not all our own.
He owe'd a bill at Murphy's who runs a beer saloon
And gave a lien on all the stock, came home crazy as a loon.

Now there's to pay a doctor's awful bill,
I know I should not tell you this, but somehow, Mrs. Dill,
My heart seems broke, my courage almost gone
For I've seen for years just how things were going on.
I used to try to keep things up the best that I could do
And I know the agent's right, and all he says is true.
He's done his honest duty, if only Jim would do the same
We'd keep our heads above the water, and none would be to blame.
But I'm so tired of trying, now that Elsie is dead,
She used to help so much, she made the nicest bread,
And lots of other things she learned at cooking school,
And tidy up the children, things were done by rule.
She was always such a help and comfort, Mrs. Dill,
Now always to remember that in the graveyard on the hill
She and my only boy are sleeping, and buried in the night
Because of shiftless management, and I cannot make it right.
And I am so tired of trying, tired of trying to try
That I've forgotten how to smile, forgotten how to cry
I only look with yearning eyes to my graves high on the hill
And long to lie beside them, in spite of my better will.
I thank you for your sympathy, tho' you haven't said a word,
But your true heart has spoken—and my sorrowing one has heard.

ELIZABETH STRONG,
Wilmington, Vermont.

MODERN METHODS IN SCHOOL BUILDING

By M. P. STANLEY, M. D., HEALTH OFFICER, WHITE RIVER JUNCTION

The attitude of the American people is rapidly changing from indifference to that of consideration for childhood. With this changing attitude, society recognizes the right of every child to receive the groundwork of a broad and liberal education in a building which promotes health, happiness and good morals, and in offering to each boy and girl the opportunity to develop that ability which he or she possesses, in a school adapted to their needs and to the demands of society. This growing consideration for the welfare of the child exhibits itself in a multitude of ways. In school he is surrounded by all the safeguards possible for his personal welfare.

If a child goes to school hungry, his breakfast is provided. If he lacks clothing there is a method by which this may be provided. Medical inspection, a free dental clinic, and free spectacles are common provisions of the law.

Compulsory attendance laws have forced upon us the duty of providing better buildings, buildings more adapted to the growing needs of the present time.

No one who has watched the progress in the design and construction of school buildings in the past generation, will doubt but that school architecture has advanced more rapidly than any kind of public buildings, except perhaps, hospitals.

When Garfield said, "A pine log with a student on one end and Dr. Hopkins on the other would be a liberal education," he uttered it to emphasize the importance of the teacher, but not to minimize the need of a proper house in which the teacher may do his work.

The older types of houses were built with mainly one object in view: cheapness.

From the sod schoolhouse on the plains of the middle west and the primitive structures of early days, there gradually developed the box-car type so familiar to us all, with its cross lights, box stove and a hole in the ceiling for ventilation, and the front and only entrance through the wood shed. The question of beauty, comfort or utility did not enter into consideration. They served their day and purpose and were more or less suited to the times, but conditions have changed and people are building better houses in which to live and better barns in which to house their stock; they are buying better vehicles in which to ride and are able to build houses in which to educate their children—houses that are more comfortable and more pleasing to the eye, and which speak of the beautiful life and character.

For some time this insistent demand for better schoolhouses has been two-fold in character: First, there has been a demand for greater flexibility by which they might be increased in size, to meet the needs of

growing school populations, and adaptability in arrangement so that buildings might serve not only for class room instruction, but for shop, athletic recreation, and social center purposes; second, a distinct demand has existed for safety, both in the matter of protection against fire and panics, and against health-destroying influences. This safety demand has sought the wider use of fireproof materials, the introduction of fire escapes and a reduction in the height of buildings. It has also directed attention to better lighting, a higher grade of sanitary equipment, more thorough ventilation and more careful cleaning facilities.

In carrying out these demands, the ingenuity of architects has produced several distinct and exceedingly interesting types of schoolhouses. The one story schoolhouse, in which stairs are wholly eliminated, in which the factor of safety against fire and panic is set at a maximum, and in which the hygienic arrangements are of the best, has found favor in certain parts of the West, and in California, in particular.

In the North and East, where the severe winters demand a more compact schoolhouse, the one-story building has developed with top-lighted classrooms surrounding corridors and assembly halls. Another type of school is the open-air building, where provision is made for housing pupils under conditions approximating a continued temperature of from 50 to 68 degrees throughout the winter. This type of building has been more prevalent in the South and West and bids fair to reduce to a minimum the effect of poor housing on the anaemic and pretubercular children.

Still another type is the cottage school, which, though satisfactory, has been developed in only a few communities. The very large land area required sometimes more than off-sets the advantages of flexibility and low cost of construction. The practice of providing separate assembly halls and study rooms for high schools is becoming universal, even in small cities and villages. The wider use of the school auditorium for all sorts of community purposes has made school authorities more liberal, and this feature of the high school has taken on the size and equipment of a fine lecture hall or even of a small theatre.

It is very probable that for some years to come the one room, or what is a better term, the one teacher building, will be common throughout Vermont. It is also probable that the open air type of building will find little favor in Vermont, except perhaps in some of the larger centers of population, where it will be possible to make a fair sized school by selecting the weaklings from a much larger school population.

Still, it is not unreasonable to suppose that with the present tendency toward consolidation and the conveying of many of the pupils to a more central location in order to obtain the advantages of grade work, that many of our one teacher buildings will, in the course of a few years, be abandoned or suitably enlarged in order to accommodate the increased attendance.

During the last decade American education has been practically revolutionized by the changes in the course of study. Similarly, the planning of school buildings has undergone radical improvement by the establishment of new principles of arrangement, lighting, heating and ventilation. Leading educators support the opinion that we are only at the beginning of the regeneration of the schools, and that the next ten years will see the immense extension of vocational education, junior high schools, continuation schools, social centers, etc. All of these new things in education will demand the adaptation of the school plant to their needs, and will involve further radical revision in arrangement and construction.

Timely anticipation of future needs is frequently recommended but is not often enough considered by building committees. The economy of the day is held to even though it may become the great source of waste in a few years, because the idea of flexibility is not kept in mind.

Build your schoolhouses so that they can be enlarged without demolition.

Selecting an architect.—It would hardly seem necessary at this time to make the statement that schoolhouses cannot be successfully planned by anyone not a practical architect, with a knowledge of the fundamental principles of classroom design. It is probably true that the architect approaching the design of his first schoolhouse finds at hand a larger amount of standardized data than would be accessible for almost any other undertaking. He finds unquestionable authority for floor area and air space, height of windows, blackboards and ceilings, area and direction of light, degree of heat, sanitation, air supply per pupil, etc., etc., down to the most minute detail.

After following these directions there is still left for his individual discretion the adaptation of these rules to the case in hand, and his taste in exterior and interior treatment.

He has to consider the number of pupils to be accommodated in each room, the number of such rooms to be provided, the required auxiliary facilities, the requisite number of stories, the relation of the building to its site, and the most advisable method of adapting the details of construction to the appropriation. Naturally, the last named feature is the controlling one and is most responsible for the good or bad in current schoolhouse architecture. Just as every community finds it necessary to adapt books, courses of study, teaching methods, etc., to its own peculiar needs, so must every building be adapted to the organization and plan of management of every school. From the purely money saving standpoint, the school board makes a serious mistake which does not entrust its building problems, either large or small, to the experienced school architect.

The modern rural school.—The first essential of the modern building is, of course, a suitable location of liberal dimensions. Much has been said and written about grounds of ample size for play and recreation, its

accessibility, etc., but very little attention has been paid to the possibility of a running water supply and modern toilet facilities. It seems to have been taken for granted that the only thing available for the country schoolhouse was the old fashioned privy vault and no suitable provision for drinking water, much less, a place where one could wash. An available water supply should be one of the first things to be thought of in selecting a site. For a good sized district school, nothing less than two acres should be considered and for a consolidated school, three acres at the least. This will give room for the house, playgrounds for the little folks, tennis court, baseball diamond, sheds for those who drive, and plots for agriculture and gardens. The house should set well towards the front, leaving a limited area for lawn, which should be entirely divorced from the playground area. As a school home the grounds should be made attractive. It would be money well invested if a landscape gardener were employed to plan the ground and assist in setting shrubbery, trees, etc.

The building.—The modern country school program cannot be successfully managed in a one-room structure. The designation one-, two-, or three-room schoolhouses should be dropped from educational discussions, and instead they should be spoken of as one-, two- or three-teacher buildings. Every rural school that has a right to exist, needs an unobstructed class room, two cloak rooms, a library room, one or two work rooms, and a closet for apparatus, such as maps, charts, globe, etc.

The working out of these details should, of course, be left to the architect, who should also make an effort to make the building harmonize with the surroundings. In Switzerland it is customary to provide living quarters for the teacher in the country schoolhouse, but since the shortest period for which they are hired is four years, instead of for one term, as is usually the case in this country, the schools have a home-like appearance, and are never characterized by the neglect evident in so many American country schoolhouses, which are deserted for several months in the year. The problem of heating and ventilating the rural school is one which deserves much care and attention. A fairly satisfactory way is the jacketed stove if only a one-room building is to be built, but please bear in mind that we are building a one-teacher building and the jacketed stove will hardly answer the purpose. A small steam plant or a hot air furnace will be satisfactory.

These need not necessarily be located in the basement. If so, as much care in making the furnace or boiler room fireproof should be used as in the larger buildings. Cloak rooms are a necessity from every point of view and there should be two of them, one for the boys and one for the girls. There will be much less disturbance if these cloak rooms open directly off the main class room, rather than from the hall. The teacher has closer supervision over the pupils and it is economy, because it lessens the hall space, which is very hard to heat, a small vestibule or enclosed

porch answering the purpose. Directly off the cloak rooms should open the toilet with flush closet, lavatory and shower bath. The time is not far distant when the people will demand toilet rooms at school which will be equal in equipment to the modern bathroom at home, even to the installation of a porcelain bath tub. If farmers could realize what these improvements mean to their girls and boys in pureness of thought and cleanliness of character, it would be but a short time before every schoolhouse would have them. Next in importance is a library room, which at present is found in none but the most modern buildings. Why a library room? Such a room will furnish a quieter place for the older students to consult reference books, in which to do some real studying, and thus furnish an inviting retreat from the humdrum. The room will be dedicated to books and to their use not only by the pupils but by the members of the community not in school. It should be the most inviting and carefully furnished room in the building, even though it be small. It could also serve for the teacher's office and consulting room, and should contain a couch where the child taken ill in school could rest.

The time has come in our rural school work to teach children how to do manual work, how to institute experiments and how to get valuable information from their own direct observations. Workrooms are an important adjunct and, in fact, are necessary to meet in a satisfactory manner the full demands of education. We therefore need two workrooms, one for the boys and one for the girls. Of course, in a school with a small enrollment it would be possible to make one room serve the purpose, but the difficulties incident to the management of both lines of work in one room are very great.

A schoolhouse laid out and built along the lines indicated would lend itself admirably to the oversight of one teacher, and would also present attractions as a social center. Details could be worked out by any architect of ordinary ability, and the cost would probably not exceed fifteen or eighteen hundred dollars. With the advantages offered by one of these houses, Dr. Hopkins would have had a better opportunity to teach Garfield than if they were compelled to sit on opposite ends of a pine log.

The modern graded or high school.—Very rarely will any school building be built in the villages or larger centers of population, which will not, in the course of a few years at the most, prove too small to care adequately for the growing school population. The tendency of families living near the village, and also farther out, to move into town in order that their children may receive the advantages of what is considered a better school, and the growing demand for transportation to the graded school, will always operate to tax to the limit the house that is built only for immediate needs. Here, again, the idea of flexibility and enlargement without total loss must be kept in mind. In growing centers of population, no schoolhouse should be built which will not accommodate at least thirty per cent more than immediate needs, and in villages where there is

a probability of considerable growth it would be better to adopt the unit plan of one-, two- or four-teacher buildings. This is, perhaps, easier said than done, owing to the well known tendency of the taxpayer to grumble at the size of the tax rate, but it is a fact that a new schoolhouse always stimulates a desire on the part of both pupils and parents to reap the advantages which such building affords, and you will always find that there is a much larger enrollment on the opening of a new schoolhouse.

My own personal opinion is that the eight-teacher building is as large as should be built to meet conditions which prevail in Vermont, placing our faith in more buildings rather than in enlargement beyond that size. Here, again, there will be met the strenuous opposition of the tax payer, advocating the finishing off of rooms in the attic or even the basement.

While the two-story building with basement has been the prevailing type for a good many years, and probably will be until someone has the courage to get out of the rut, evidence is accumulating that this type of building must take a back seat in favor of a more elastic and economical type. Their lack of flexibility, the necessary uniformity in size and shape of rooms, the disadvantages of many flights of stairs and the danger from fire, unless built fireproof, which they seldom are, render them much less desirable than the one-story, unit type. A study which was instituted jointly by the architect and school authorities of Rochester, N. Y., led to the following conclusions: "First, the one-story schoolhouse will be cheaper than a two- or three-story building, even taking into account the additional land required; second, the classrooms may be lighted perfectly from above by means of skylights which distribute the illumination equally to every part of each room; third, the plan is elastic, and additions can be made at small cost. Special features, such as domestic science rooms and kindergartens, can be built when required, without disturbing the regular classrooms; fourth, the danger from fire and panic can be absolutely avoided because each classroom can have a separate exit leading directly into the open."

Notwithstanding these advantages it is quite probable that there will continue to be a demand for the more imposing two-story structures, and consideration of how these may be better built and in many instances improved upon, is quite in order. First in importance is a careful planning against the fire hazard. The people, as a whole, favor efficient fire protection, but the trouble is, that when it comes to the question of a single building, the public almost always vote for the cheapest construction. It is a comparatively simple matter to secure safety from fire. Two general rules, if followed intelligently, will be sufficient to make any schoolhouse moderately safe. The first rule is to avoid draughts everywhere. Shut in the stairs and divide the attic in two, or still better no attic at all. The pitched roof for a school building should be advised against, not only because it is difficult to design such a roof in a fire-resisting manner, but also on account of the tendency of school authorities to make use of

the attic space, which is almost always stored with rubbish and cast-away furniture. The flat roof is also cheaper to build. The main stairways could be easily extended to the flat roof, with an iron fire escape leading to the ground, furnishing another means of exit. The second rule is, make the furnace room fireproof. Most schoolhouse fires start in the cellar, either by overheated furnaces, boiler explosions, defective piping or the careless disposal of ashes and waste paper. It is entirely feasible to place the heating plant entirely outside the main building, but if this is not done the coal pocket, at least, should be outside. It will be surprising what an amount of coal dust can be saved from the building by this simple precaution. In addition to these rules for fire protection, there should be placed at convenient and readily accessible places, several chemical fire extinguishers, of a type approved by the National Board of Fire Underwriters, and the teachers and larger boys should be well drilled in their use. The janitor should be instructed to see that they are at all times in working order.

The actual cost of a building of this type, which is not a fireproof, but a fire-retarding building, is but slightly greater than the combustible type, and if insurance rates and actual losses are considered, is much cheaper in the long run.

In Vermont there is no necessity of going above two stories in height, because there is plenty of land available. Such limitation in height is an added precaution against the danger from fire. Electric power is available in nearly all communities where there is need of an eight-teacher building, consequently, all houses of this size should be piped for a vacuum cleaner. Cleaning is thus made not only much easier, but absolutely free from dust caused by the old method of sweeping.

Toilets.—Common custom places the toilets in the basement where they are none too well lighted, and where they are, in fact, in the least desirable part of the building. It is almost impossible to keep some of the odors, especially from the urinals, from penetrating to the playrooms, which are also usually in the basement, and in some cases even to the classrooms. It is true that a more agreeable odor can be substituted by the use of any one of the so-called disinfectants, which are, in fact, nothing but deodorizers, but this does not mitigate in the least the nuisance created by the common urinal, which should be relegated to the scrap heap. Again, the custom of sending or allowing anywhere from five to twenty boys or girls all at once to make use of the basement toilets is wrong in principle and vicious in its practices. I believe there is more mischief incubated and hatched in the basement than in any other part of the building. Opportunity is afforded for the larger and even the smaller boys to light a cigarette if they are so inclined and it cannot be denied that many of them are; the janitor cannot at all times be there to supervise, and it is certainly not the duty of the teacher to follow the larger boys to the basement. From both the moral and sanitary standpoint, I

believe it is better not to colonize the toilets in the basement. There have been built within quite recent years several modern schoolhouses with all toilet facilities on the same floor level as the classrooms, in some instances opening directly off the classroom itself, in other cases opening off a small ante-room which serves for a cloak room. Such arrangement has been found satisfactory from every standpoint, especially because the teacher has direct supervision over them at all times.

Seating.—It is the universal custom in Switzerland to equip the schoolhouses with the movable seats and desks, never screwing them to the floor as is usual in this country. Such a proceeding being contrary to the Swiss idea of cleanliness. Movable furniture may be moved and the room cleaned, not partially, but completely. Forty seats in a room attached each in four different places to the floor, provide 160 perfect cesspools of filth. The most striking example of the practicability of the movable type of seats, is the Washington Irving school in the Borough of Manhattan, New York City. This building accommodates 5,000 pupils three sessions daily. Advantages claimed for the movable type are: It habituates children to live in school as they are to live in life; it facilitates healthy seating positions; a movable chair may be placed just where it will best support the body; it facilitates all school work. No one would ever think of a worker in life being obliged to take a sedentary position sitting in anything but a movable chair, and the chair must be movable in every particular. It must be set on rollers; it must be a revolving chair; it must tilt backward and forward. These are the natural demands of life, and yet the schools of the country have utterly ignored these claims until very recently. Is it longer wise to condemn our little children to sit in the hard unyielding seats which past generations have provided? We have been told how the children would knock over the seats, how noisy it was and a number of other imaginary evils. I have been told what a menace it was in case of fire, yet, there is not a single case on record where the movable furniture served to increase the fatality of any fire catastrophe. Take, for instance, the Collinwood disaster, where 168 children perished. The panic was not in the classrooms, but in the corridors.

Nor, again, can we forget the great disaster at the Iroquois Theatre in Chicago, where we are told there was not a movable seat in the theatre. Surely, in either instance, the panic and resulting loss of life could have been no greater had all the seats been movable. It goes without saying that the seats should be adjustable to the size of the child in all cases.

Inspection and condemnation of schoolhouses.—The power to condemn schoolhouses as unfit for use being vested in the State Board of Health, it follows that our inspection of them resolves itself into a more or less detailed report of conditions as they actually exist. There are many conditions to be taken into consideration in the inspection. Heat, light, ventilation, plan of seating, fire hazard and sanitary surroundings

are the main features to be observed. Occasionally the location of the building, as in a low, moist or swampy patch of land, being enough to condemn it as unfit for use. Heating and ventilation of the ordinary one-room house, as they exist in Vermont, is a comparatively simple matter. The jacketed stove and ventilating flue can be installed for a hundred dollars or less, and are fairly satisfactory. In the larger buildings, especially the four- or eight-room brick schoolhouse, built fifteen or twenty years ago, the matter of installing a satisfactory ventilating system involves a good deal of expense. This, together with the cost of fire escapes or the fireproofing of the boiler room, make school boards reluctant to make the necessary changes and frequently the only course to pursue is to have the building condemned.

In the absence of any satisfactory ventilating system, recourse may be had always to the periodic flushing of the rooms with fresh air by opening the windows. It is a sad fact, nevertheless true, that our teachers know a great deal more about ventilation than they put into practice, and one often wonders what good her information does her pupils.

The janitor service offers a splendid field for the exercise of patience, firmness, wisdom and push. Many janitors are troubled with congenital myopia and many of them are afflicted with the hook worm; few of them are troubled with an excess of horse sense. Ventilation, light, heat, cleanliness and sanitation depend so largely on the gracious purpose of these functionaries, that they should have, at least, a semblance of interested activity. The janitor is the servant of the public and as such, should be diligent in so conducting his part of the business as to conserve the welfare of the pupils. Proper and efficient janitor service will go far toward remedying conditions which, if neglected, might easily place a building in the unfit class.

BULLETIN

OF THE

VERMONT STATE BOARD OF HEALTH

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The BULLETIN is published quarterly by the State Board of Health under the authority of Section 5 of Act No. 90, Legislature of 1900. It will be sent to all Boards of Health. A copy will be sent to any person in the State upon request, addressed to the Secretary, Charles F. Dalton, M. D., Burlington.

NO HEALTH OFFICERS' SCHOOL THIS YEAR

The State Board of Health has decided to omit the annual school of instruction for health officers this year. Instead of the session at Burlington, it is planned to give a correspondence course during the year. This course will consist of questions relating to the public health laws, rules and regulations, and methods of procedure under the various circumstances which arise in the daily work of the health officer. The laws relating to public health, with the additions and amendments made by the last legislature, are now being compiled and as soon as these are printed, further announcement will be made.

PREPAREDNESS

Every health officer should realize that he holds in his hands a part of the destiny of the nation. While we are recruiting our armies and sending men to the front, we must realize that these men have to be supplied with munitions of all kinds, including farm products and all the various manufactured articles. The civil population must supply these needs and, in order to do so, must be kept in health. It has been said that it takes 20 to 30 persons at home to keep one man on the firing line. The whole military organization is alert to the necessity of keeping a soldier in proper condition for his duty. It must be the health authori-

ties who have the responsibility of keeping the 20 or 30 at home free from communicable disease which would interfere with their work. While we are thinking in terms of the military, it must be impressed upon the minds of all that the civil population is, after all, the great background of the army and that nothing must be permitted to interfere with the resources at home.

THE EPIDEMIC OF MEASLES

True to its four year period, the epidemic of measles appeared in the state at the beginning of the school year last September. At that time, there were only fifty reported cases in the state and the disease failed to get well started until November, when 173 cases were reported. From that time on, cases steadily increased until the epidemic reached its maximum in March, 1917, when a total of 2,237 cases were reported. As was the case four years ago, the climax occurred in March with a sharp decline following, so that in April, this year, there were only 1,446 cases and it is to be expected that from now on, the epidemic will rapidly subside. Early in the year, the counties most largely affected were Orange, Rutland, Washington and Windsor. Bennington and Caledonia Counties later became infected and the contagion also spread in Windham County. These counties have been the principal sufferers. Orleans and, to a smaller extent, Chittenden and Addison Counties showed the effects of the epidemic in April but not to anywhere near the extent which had prevailed in the other counties. The rest of the state has been comparatively clear of this disease. The harvest of the epidemic in 1913 was 80 deaths. With even more cases, thus far, in 1917 than appeared at that time, it yet remains to be seen what will be the final outcome. Scattered cases of smallpox create excitement little short of panic, but thousands of cases of measles are looked upon as a matter of course. Until the public, generally, is educated to regard measles in its true significance, the history of 1912-13 and 1916-17 will probably be repeated at regular intervals.

THE RESULT OF ONE SMALLPOX CASE

On April 12th, a woman with a well developed case of smallpox appeared on a train at Essex Junction, having travelled from New London, Conn. At Essex Junction, she became so ill that she was obliged to call a physician. Her case was at once diagnosed as smallpox and she was quarantined in a vacant house in the village. The next day all the health officers of the state were notified to be on the lookout for cases developing from this exposure. Up to the present, cases have been reported as follows: One in Underhill, two in Bellows Falls, one in Essex Junction, one in Berlin and one in Barre Town. With one exception, these persons were on the train with the patient. The exception was a man who came

in contact with her at the railroad station. All those who have come down with the disease were unvaccinated.

Later Report—On May 26, cases were present in the following towns: Underhill, Berlin, Essex, Northfield, Braintree, Bellows Falls, Barre, Waterbury, Calais; ten cases due to direct exposure to the original patient, and 21 secondary cases.

REPORT OF THE LABORATORY OF HYGIENE

The figures below represent the analytical work performed in the Laboratory of Hygiene during the months of February, March, and April, 1917.

Cultures from the throat examined for diphtheria bacilli.

	Feb.	March.	April.
Positive	28	39	14
Negative	347	622	219
Total	375	661	233

Specimens of blood examined for the Widal reaction.

	Feb.	March.	April.
Positive	8	17	7
Negative	28	39	32
Total	36	56	39

Specimens of sputum examined for tubercle bacilli.

	Feb.	March.	April.
Positive	18	29	19
Negative	139	162	111
Total	157	191	130

Specimens of food products (detail table following) examined for compliance with legal standards.

	Feb.	March.	April.
Legal	8	12	32
Adulterated	—	2	12
Total	8	14	44

Miscellaneous examinations (unclassified).

	Feb.	March.	April.
Positive	57	79	38
Negative	64	87	62
Total	<u>121</u>	<u>166</u>	<u>100</u>

Specimens of water examined for potability.

	Feb.	March.	April.
Ground Waters.			
Normal	36	1	2
Showing present pollution.....	—	—	—
Showing past pollution.....	6	12	10
Showing past and present pollution.....	—	1	—
Surface Waters.			
Normal	8	6	2
Polluted	—	—	—
Total	<u>50</u>	<u>20</u>	<u>14</u>

Specimens of drugs (detail table following) examined for compliance with legal standards.

	Feb.	March.	April.
Legal	164	16	—
Illegal	6	4	—
Total	<u>170</u>	<u>20</u>	<u>—</u>

Specimens of liquor examined for the Secretary of State under the Fourth Class License Law.

	Feb.	March.	April.
Legal	—	—	318
Illegal	—	—	—
Total	<u>—</u>	<u>—</u>	<u>318</u>

Examinations for the Department of Justice.

	Feb.	March.	April.
Autopsies (medico-legal)	1	3	1
Miscellaneous examinations	1	6	—
Total	<u>2</u>	<u>9</u>	<u>1</u>

Autopsies for cause of death where no foul play was suspected.

	Feb.	March.	April.
Autopsies	7	1	5
Miscellaneous examinations	3	2	8
Total	10	3	13

Specimens of blood examined for malarial parasites.

	Feb.	March.	April.
Positive	—	—	—
Negative	—	1	—
Total	—	1	—

Blood for Wasserman reaction.

	Feb.	March.	April.
Positive	9	21	14
Negative	47	50	28
Suspicious	3	3	4
Total	59	74	46

Examination of discharge for gonococci.

	Feb.	March.	April.
Positive	20	23	12
Negative	39	27	27
Total	59	50	39

Specimens of milk (detail table following) examined for compliance with legal standards.

	Feb.	March.	April.
Above standard	28	50	39
Below standard	56	89	66
Total	84	139	105
Grand Total	1131	1404	1082

RESULTS OF LIQUORS EXAMINED FOR COMMISSIONER
OF TAXES—QUARTER ENDING APRIL 30, 1917.

	Legal	Not legal
Whiskey	133	0
Brandy	15	0
Rum	9	0
Gin	27	0
Wine	34	0
Malt Liquors	80	0
Miscellaneous	20	0
Total	318	0

RESULTS OF EXAMINATIONS OF SAMPLES OF MILK
NO. 118, ACTS OF 1908.

FEBRUARY, MARCH AND APRIL, 1917.

BENNINGTON.

*Above Standard.**

D. E. Bushnell	J. C. Colgate
G. H. Moore	John Scully No. 3
Geo. Smith	Hewitt & Sons
Hewitt Bros.	Fred Foster
S. R. Lake	Chas. Sanders
Chatalle	G. L. Harwood
J. E. Walbridge	C. L. Holden

Below Standard—Not Absolutely Clean.

H. Rice	Phil. Jacobs (2)
B. Sanders	Wilcox
F. Briggs	John Scully
A. Gensel	L. Briggs No. 2
Hewitt & Sons (cart No. 2)	S. VanSantvoord
F. D. Eaton	J. C. Colgate
John Scully No. 2	W. Rose
S. VanSantvoord No. 2	

Low Quality Chemically.

T. Sweet

Low Quality Chemically and Physically.

Wilcox No. 2
 Geo. Menworth
 MANCHESTER.

Mrs. Cone

Above Standard.

E. M. Taylor

R. H. Purdy

Below Standard—Low Quality Chemically and Physically.

R. D. Brown
 BURLINGTON.

Above Standard.

Barber (2)	Bixby (3)
St. John (2)	Steele & Butler (2)
Little	Tyler (2)
Suckstoff	Newton (2)
Poquette (2)	Murray
Haynes (2)	MacMurphy (2)
I. W. Catlin (3)	Saltus
Spear St. Dairy (Stewart Farm 2)	Bostwick
Spear St. Dairy (Holt Farm 1)	University M. & G. Co.
Demper	Leary Estate
Callen (3)	

Below Standard—Not Absolutely Clean.

MacMurphy	O'Brien (2)
Bostwick (2)	Genereaux (3)
Ritchie (3)	Newton
University M. & G. Co. (2)	Ashline
Tyler	Spear St. Dairy (Holt Farm 2)
Calkins (3)	McGrath (2)
LaReau (3)	Canning & Finnegan (20)
Saltus (3)	Poquette
Murray (2)	Haynes
Saiger (3)	Demper (2)
St. John	Little (2)
Suckstoff	Burlington Lunch
Boston Lunch	Steele & Butler
Cohen	Barber

Dirty.

Soule & White	Glasston (3)
Leary Estate	Gladstone (2)

Low Quality—Chemically.

Star Restaurant	O'Brien
-----------------	---------

Low Quality—Chemically and Physically.

McGrath	Soule & White
Gladstone	U. & I. Lunch
Leary Estate	Calkins

WINOOSKI.

Below Standard—Not Absolutely Clean.

Mercure Bros.	(LaCasse Farm)	F. X. Allard	(Fitzgerald Farm)
" "	(Brossor Farm)	" "	(Morgan Farm)
" "	(St. Gelais Farm)	Omar Richard	
Edward Roy	(F. Weston Farm)	Jas. Gamelin	

Dirty.

Mercure Bros.	(Mrs. Weston's Farm)
" "	(A. Mercure Farm)
F. X. Allard	(Greaves Farm)
Omar Richard	

Low Quality—Chemically and Physically.

Mercure Bros.	(Perotte Farm)
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SWANTON.

Below Standard—Not Absolutely Clean.

Sim Perry	F. H. Hall
Campbell	

DANBY.

Below Standard—Not Absolutely Clean.

F. Raiche

PROCTOR.

Above Standard.

W. J. Sharp	W. J. Norris
W. Mead	

Below Standard—Not Absolutely Clean.

W. Meade

Bert Hier

BAREE.

Above Standard.

E. Lawless (Roger Farm) G. V. Wennerstrand (2)

" " (Morrison Farm) G. Camire (2)

C. W. Persons (2) L. F. Webster

E. C. Webster (2)

Below Standard—Not Absolutely Clean.

R. Lawless (Bancroft Farm) M. P. Mortimer

E. Lawless (Perrin Farm) L. F. Webster (3)

" " (Nichols Farm) W. T. Carley

Persons

Low Quality—Chemically.

R. Lawless

MONTPELIER.

Above Standard.

R. Thresher Montpelier Creamery

John Alexander (2) P. J. Jerome

H. S. Tabor (2) E. A. Knapp

Below Standard—Not Absolutely Clean.

Montpelier Creamery John Crozier

G. K. Lawrence Turnbull Co. (2)

E. C. Harris Geo. E. Bliss

F. Cooley Robert Thresher

H. S. Tabor E. A. Knapp

J. B. Morse W. D. Walker

Boisvert Bros.

BELLOWS FALLS.

Above Standard.

E. Clark E. Richardson

C. A. Peck W. S. Fenn

C. E. Robertson

Below Standard—Not Absolutely Clean.

Converse

C. E. Howard

C. H. Wright

Low Quality—Chemically.

W. E. Pierce

Low Quality—Chemically and Physically.

M. J. Granfield

BRATTLEBORO.

Above Standard.

W. S. Richardson

H. M. Barrett

E. D. Sinclair (2)

Below Standard—Not Absolutely Clean.

A. J. Tate (2)

A. L. Quint

A. T. Kirkwood (5)

E. D. Sinclair (3)

A. F. Robbins (2)

W. S. Richardson

P. H. Winchester (2)

Poor Quality—Chemically and Physically.

C. C. Winchester

HARTFORD.

Above Standard.

H. E. White

Below Standard--Not Absolutely Clean.

H. E. White (3)

A. W. Densmore

W. W. Pierce

Stone's Restaurant

E. B. Newton

Dirty.

Junction House

WINDSOR.

Above Standard.

G. H. Gates

Austin Farm

Martha Driver

D. Blanchard

F. Hewitt

Below Standard—Not Absolutely Clean.

Harry Hunt

Geo. Gates

Hewitt

Hunt Farm

Blanchard
Austin
Gould Farm (2)

Evarts & Hunt
Austin Farm

SUBMITTED SAMPLES OF MILK FOR FEBRUARY, MARCH AND APRIL, 1917.

Above Standard	24
Below Standard:	
Not Absolutely Clean	30
Dirty	2
Low Quality—Chemically	4
Low Quality—Chemically and Physically.....	4
Total	64

* MILK STANDARD.—Milk is fresh, clean lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916, AND JANUARY, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler		Under "Food and Drug Law"			Submitted Domestic Product			
						Legal	Adul-terated	Mis-branded	Whole some	Unwhole-some		
Vinegar.....	69848A	Feb. 23 *			Bennington Co.	1						
"Ice Cream.....	71759A	Mar. 28	C. L. Hudson.....		Bennington.....				1			
".....	71758A	"	G. L. Harwood.....		"				1			
Bennington County	Total..					1			2			3
Olive Oil.....	69972A	Feb. 26			Caledonia Co.	1						
Butter.....	72689A	Apr. 20	Hardwick Creamery.....		E. Hardwick.....		1				Under weight (15¼ oz.)	
Caledonia County	Total..					1	1					2
Ham.....	68952A	Feb. 1			Chittenden Co.							
Candy (Assorted Jumbos).....	68622A	Jan. 25	Max Glasston.....		Burlington.....	1			1			
Candy (Boston Baked Beans) Columbia Brand	68620A	"	"		"	1						
Corn Syrup; Pre-serve Compound, Apple, Peach.....	68619A	"	"	Corn Products Refining Co.	"	1						
Preserve Compound, Apple, Strawberry, Capitol Brand Sweet	68618A	"	"	"	"	1						
Corn.....	68609A	"	"	"	"	1						
Candy (Green Suckers).....	68621A	"	"	"	"	1						
Neptune Brand Yellow Cling Peaches, Camphorated Oil....	68612A	"	"	Sunlit Fruit Co. Burlington	"	1						
".....	68614A	"	"	Drug Co.....	"	1						
".....		"	"	The Wasson Co.	"	1						
Fragrant Brand Blended Coffee.....	68616A	"	"	"	"	1						

Ketchup (Table Talk Brand).....	68610A	Jan. 25	Max Glasston.....	R. C. Chance's Sons.....	Burlington.....	1	.....	.....	.....
Raymond Brand Blueberries.....	68611A	"	"	H. L. Forhan.. Burlington	"	1	.....	.....	.....
Spts. Camphor.....	68615A	"	"	Drug Co.....	"	1	.....	.....	.....
Tinct. Iodine.....	68613A	"	"	Winters & Prophet Canning Co.....	"	1	.....	.....	.....
Empire Brand Red Kidney Beans.....	68608A	"	"	Essex Packing Co.....	"	1	.....	.....	1/2 strength.
S-X Brand Tomatoes.....	68626A	"	H. Gladstone.....	Kimball Bros.....	"	1	.....	.....	.....
Hydrogen Peroxide..	68623A	"	"	H. C. Hutchess Co.....	"	1	.....	.....	.....
Imperial Pie Fruits	68625A	"	"	Monmouth	"	1	.....	.....	.....
Mixture, Raspberry Flavor.....	68627A	"	"	Seed Co.....	"	1	.....	.....	.....
Crim's Choice	71123A	Mar. 16	"	.....	"	.....	.....	.....	.....
Tomato Catsup.....	71130A	"	.....	.....	"	.....	.....	.....	.....
Cream.....	71963A	Apr. 2	Union Pacific Tea Co.....	T. E. Donahue..	"	1	.....	.....	65 % fat.
Condensed Milk.....	72168A	Apr. 6	Wilson & Co.....	M. F. & W. C. Donahue.....	"	1	.....	.....	74 % fat.
Butter, Clear Brook Creamery Brand, C. B.....	72170A	"	Atlantic & Pacific Tea Co.....	Chicago House of Wilson & Co.....	"	1	.....	.....	76 % fat.
Butter.....	72169A	"	Wilson & Co.....	.....	"	1	.....	.....	.....
"	72324A	Apr. 11	Combination Cash Store	So. Hero Creamery Ass'n.....	"	1	.....	.....	.....
"	72325A	"	"	Grand Isle Corp. Creamery Ass'n.....	"	1	.....	.....	.....
"	72326A	"	"	Mad River Valley Farms Creamery.....	"	1	.....	.....	.....
"	72327A	"	"	W. F. & W. C. Donahue.....	"	1	.....	.....	80.5 % fat.
"	72663A	Apr. 19	.....	.....	"	1	.....	.....	79.3 % fat.
"	72664A	"	.....	.....	"	1	.....	.....	75 % fat.
"	72665A	"	.....	.....	"	1	.....	.....	79.15 % fat.
"	72954A	Apr. 25	C. A. Barker.....	Shelburne Farms.....	"	1	.....	.....	.....
"	72953A	"	Dolan Bros.....	Jonesville Creamery.....	"	1	.....	.....	.....

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING JANUARY, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination						Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Under "Food and Drug Law"			Submitted Domestic Product			
						Legal	Adul- terated	Mis- branded	Whole- some	Unwhole- some		
Butter.....	72908A	Apr. 25	Union Pacific Tea Co...	M. F. & W. C. Donahue...	Essex Jct.....	1	1	1	1	1	75 % fat.....	1
".....	72955A	"			Burlington.....	1	1	1	1	1	79 % fat.....	1
Maple Syrup.....	73034A	Apr. 26			Essex County Concord.....	1	1	1	1	1		1
Butter.....	72323A	Apr. 10				1	1	1	1	1		1
Essex County.....	Total..					5	3	3	2	2		10
Meat.....	71854A	Feb. 1			Lamoille Co. Cambridge Jct. Morrisville.....	1	1	1	1	1	Potass. Iodide.....	1
Potass. Bromide.....	71854A	Mar. 27				1	1	1	1	1		1
Lamoille County.....	Total..					5	3	3	2	2		10
Boiled Cider.....	71913A	Apr. 6			Orange Co. Randolph.....	1	1	1	1	1	Contains Zinc.....	1
Mayflower Extract	72837A	Apr. 23	J. B. Adams.....	The A. Col- burn Co.....	"	1	1	1	1	1	3.5 % Anise Oil.....	1
Pure Vanilla.....	72842A	"	H. A. Leonard.....	"	"	1	1	1	1	1	25 % Ethyl Nitrite.....	1
Spts. Anise.....	72841A	"	"	"	"	1	1	1	1	1	Low in Potass. Iodide.....	1
Sweet Spts. Nitre.....	72843A	"	"	"	"	1	1	1	1	1		1
Tinct. Iodine.....	72845A	"	V. A. Grant.....	"	"	1	1	1	1	1		1
Spts. Camphor.....	72846A	"	"	"	"	1	1	1	1	1		1
Tinct. Iron Chlor.....	72844A	"	"	"	"	1	1	1	1	1		1
Sweet Spts. Nitre.....	72847A	"	"	"	"	1	1	1	1	1		1
Orange County.....	Total..					5	3	3	2	2		10
Sausage.....	70808A	Mar. 12			Rutland Co. W. Rutland.....	1	1	1	1	1		1
".....	70985A	Mar. 13				1	1	1	1	1		1
Orange County.....	Total..					5	3	3	2	2		10

Palmero Superior Ext. Lemon.....	71054A	Mar. 14	R. E. Palmer	.....	Franklin Co.	1	.....	.....	.....
Baker's Pure Ext. Vanilla.....	71053A	"	"	Baker Ext. Co.	St. Albans	1	.....	.....	.....
Foss' Pure Ext. Lemon.....	71051A	"	"	Schlottbeek & Foss Co.	"	1	.....	.....	.....
Foss' Pure Ext. Vanilla.....	71052A	"	"	Schlottbeek & Foss Co.	"	1	.....	.....	.....
Red Front Pure Vanilla Ext.....	71045A	"	Atlantic & Pacific Tea Co.	Atlantic & Pacific Tea Co.	"	1	.....	.....	.....
Red Front Pure Lemon Ext.....	71047A	"	Atlantic & Pacific Tea Co.	Atlantic & Pacific Tea Co.	"	1	.....	.....	.....
Excelsior Pure Honey	71049A	"	Atlantic & Pacific Tea Co.	Excelsior Honey Co.	"	1	.....	.....	.....
Peroxide of Hydrogen A. & P. Brand.....	71050A	"	Atlantic & Pacific Tea Co.	Atlantic & Pacific Tea Co.	"	1	.....	.....	.....
Imported Olive Oil	71048A	"	Atlantic & Pacific Tea Co.	Atlantic & Pacific Tea Co.	"	1	.....	.....	.....
Kipper Club Norwegian Sardines in Pure Olive Oil.....	71046A	"	Atlantic & Pacific Tea Co.	Atlantic & Pacific Tea Co.	"	1	.....	.....	.....
Franklin County..	Total..	.....	.....	.....	"	10	.....	.....	10
Tinct. Iodine.....	69815A	Feb.	20	G. E. McGrath.	Washington Co.	1	.....	.....	2.5% Ethyl Nitrite
Sweet Spis. Nitre.....	69818A	"	"	"	Montpelier	1	.....	.....	Low in Camphor.
Camphorated Oil.....	69816A	"	"	"	"	1	.....	.....	About half strength.
Fowler's Solution.....	69812A	"	"	"	"	1	.....	.....	.....
Spis. Camphor.....	69817A	"	"	"	"	1	.....	.....	.....
Ess. Anise.....	69813A	"	"	"	"	1	.....	.....	.....
Ess. Peppermint.....	69814A	"	"	"	"	1	.....	.....	.....
.....	69805A	"	"	H. A. Shade.	"	1	.....	.....	.....
Tinct. Iodine.....	69804A	"	"	"	"	1	.....	.....	.....
Tinct. Iron Chlor.....	69806A	"	"	"	"	1	.....	.....	.....
Spis. Camphor.....	69803A	"	"	"	"	1	.....	.....	.....
Sweet Spis. Nitre.....	69802A	"	"	Blakely's Phar.	"	1	.....	.....	2.6% Ethyl Nitrite
.....	69807A	"	"	"	"	1	.....	.....	1.6% Ethyl Nitrite.
Ess. Peppermint.....	69811A	"	"	"	"	1	.....	.....	.....
Tinct. Iodine.....	69810A	"	"	"	"	1	.....	.....	.....
Spis. Camphor.....	69809A	"	"	"	"	1	.....	.....	.....
Camphorated Oil.....	69808A	"	"	"	"	1	.....	.....	.....
Butter.....	72322A	Apr. 10	.....	.....	Putnamville.	1	.....	.....	.....
Maple Syrup.....	72756A	Apr. 22	.....	.....	N. Calais.	1	.....	.....	.....
.....	71978A	Apr. 3	Houghton & Robbins.	Geo. C. McKnight.	Barre.	1	.....	.....	.....

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER, 1916.

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Under "Food and Drug Law"					
						Legal	Adul- terated	Mis- branded	Whole- some		
Maple Syrup.....	71979A	Apr. "	F. D. Lodd Co.....	James Henry Erskine.....	Barre.....	1					
Maple Sugar.....	71980A				"	1					
Washington County	Total..					15	5		1	1	22
Pork.....	71890A	Mar. 31		Leonard.....	Windham Co. Brattleboro.....				1		
Maple Sugar.....	71799A	Mar. 29	Scott.....	Darbympole.....	"	1					
"	71796A	"	Bushnell.....	E. T. Miller.....	"	1					
"	71797A	"	"	Mrs. Clark & Sons.....	"	1					
"	71800A	"	Shea.....	Hamilton.....	"	1					
"	71798A	"	Simonds.....	L. H. Stone.....	"	1					
Maple Syrup.....	71914A	"	Scott.....	Thomas & Lynde.....	"	1					
"	71915A	"	"	"	"	1					
Maple Sugar.....	72282A	Apr. 10	Geo. Smith.....	Athens.....	Athens.....	1					
"	72284A	"	W. S. Fern.....	"	Westminster.....	1					
"	72281A	"	John Hitchcock.....	"	"	1					
"	72283A	"	Kern Hattin Home.....	"	"	1					
"	72286A	"	Clarence Blodgett.....	"	Westminster West.....	1					
"	72280A	"	"	"	Bellows Falls.....	1					
Maple Syrup.....	72291A	"	E. O. Wyman.....	"	Cambridgeport Westminster West.....	1					
"	72288A	"	Jerome Holden.....	"	Saxtons River.....	1					
"	72293A	"	Jed Vancor.....	"	"	1					
"	72292A	"	Dennis Sheldon.....	"	"	1					
Maple Sugar.....	72285A	"	E. L. Session.....	"	Chester.....	1					
Windham County	Total..					18			1		19
Butter.....	72449A	Apr. 16			Windsor Co. Woodstock.....	1					
Windsor County.....	Total..					1					1
Grand Total.....						52	9	1	7	1	70

*Blank spaces indicate submitted samples.

MEDICO-LEGAL CASES
SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM NOVEMBER 1, 1916, TO FEBRUARY 1, 1917.

Lab- oratory Number	Date Rec'd.	Town	Material	Examined for	Result
70416A	Mar. 5	ADDISON COUNTY Vergennes.....	Organs of cow.....	Arsenic.....	Not found
72632A	Apr. 11	CALEDONIA COUNTY Hardwick.....	Autopsy.....	Cause of death.....	Case pending
71132A	Mar. 16	CHITTENDEN COUNTY Essex Center.....	Autopsy.....	Cause of death.....	Failing right heart, following pur- ulent bronchitis
71133A	Mar. 16	" " " " " " " "	Viscera.....	Poison.....	Negative
71540A	Mar. 25	Burlington.....	Autopsy.....	Cause of death.....	Aris embolism
71541A	" " " " " " " "	" " " " " " " "	Culture.....	Type of infection.....	Sterile
71542A	" " " " " " " "	" " " " " " " "	Tissue (uterus).....	Evidence.....	Perforated and lacerated
69132A	Feb. 6	FRANKLIN COUNTY St. Albans.....	Autopsy.....	Cause of death.....	Septic sore throat
69133A	" " " " " " " "	" " " " " " " "	Tissue.....	Evidence.....	"
71930A	Mar. 3	WASHINGTON COUNTY Montpelier.....	Autopsy.....	Cause of death.....	Pulmonary tuberculosis, myocar- dial degeneration, aspiration of food
70184A	Feb. 27	WINDSOR COUNTY So. Royalton.....	Viscera of dog.....	Poison.....	Case pending
70699A	Mar. 8	" " " " " " " "	Fluid in capsule.....	" " " " " " " "	"
Total 12					

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BRATTLEBORO, VT.

1917

THE HEALTH OF SCHOOL CHILDREN

MILO B. HILLEGAS, PH. D., COMMISSIONER OF EDUCATION

No one can look at the movement toward caring for the health of school children without being impressed at the enormous number of agencies that have been brought into union in this work. In 1914, less than a decade and a half after the movement was started, there were no less than ninety national state and city associations, all having for their purpose the spreading of knowledge concerning the health of school children. The state laws, and even the reports of our cities, do not in any adequate way represent what is going on in the way of caring for the health of boys and girls because the work is so largely conducted by volunteer associations which undertake this on their own responsibility until such time as they can prove to the public the value of the work that they have undertaken. Some few years ago an association in Philadelphia began the giving of school lunches, and it was continued by this voluntary association for a considerable time until the city saw the value of this work. The city has now taken over the serving of lunches to the school children. What is true of this association is true of others,—they go out of existence after they have demonstrated the value of the work they have undertaken.

One of the most pronounced tendencies in medical inspection has been the change of emphasis from curing to preventing trouble. The early reports of medical inspection were filled with a disheartening array of diseases, defects and abnormalities. The recent reports call attention to playgrounds, ventilation, exercise, and general sanitation. Possibly no better conception of this changed attitude can be given than by mentioning some of the terms that are used to designate the work of the school physician and nurse. Among others we have: "Medical Inspector," "Health Work in the Schools," "School Health Supervision," "Medical Supervision," "Special Health Administration," "Educational Hygiene," "Department of School Hygiene," and "Department of Health Hygiene." The fact is the work in this field has changed to that of a *health movement* in education.

I recall that a few years ago when one of our children was ill I had much concern until the physician began to come twice a day because he had the reputation of caring little for cases until they got into critical condition. Today I find physicians more and more ready to see a patient when he is not ill and guard against difficulties that would be sure to come were the patient left alone, so I am not sure that this movement toward preventive measures is peculiar to the school health requirements.

A few years ago the attention of school men was first directed to the excessive number of children who failed of promotion and who were

greatly over age for their grade in the school. The attempt was made to show a correlation between such retardation and physical defects. I think I am well within bounds when I say that medical authorities to-day do not place as much importance on the effect of poor health in school work as was the case a few years ago. The removal of adenoids and tonsils may be of decided advantage to the child's health and comfort. We are by no means as sure that their presence works great harm to the child's ability in school as we were ten or twelve years ago. The importance of safeguarding the child's health is very great. I think that none of us who has not been a teacher can have any conception of the amount of time lost by children in the public school owing to illness that under proper conditions could have been prevented. I know of several private schools that are attempting to enforce a regulation that when a child has a cold he shall be kept at home. I do not know how long it will be before the public schools will be ready to stand for such a provision. There was a good deal of objection on the part of private schools at first but the children were recovering so rapidly when they were kept out that now it is a pretty well assured practice in those schools to excuse all children who have colds. Chicken pox, whooping cough, mumps, and all of that line of diseases, have caused children to spend sometimes one-third of the year out of school, when perhaps proper precautions could be taken to keep them in school during the entire time. It is not only a severe loss on the part of the child but if we are considering the matter of the health of the child it is a severe drain on the financial interests of the community. Here is the school maintained at a certain expense and here are children out because of illness that might have been easily prevented.

Among the devices that have been used for improving the health of school children is the open-air school room. This consists of a room without heat, open to the weather, except possibly on one or two sides, and equipped in such a way that children may be comfortably clad even in the coldest weather of our northern climate. For a time these open-air schools were confined to the use of tuberculous or anemic children. Extravagant claims have been made for the benefits that may be derived by normal children in such rooms. A number of the cities in the United States, and some of the small communities, seized upon this and at once instituted in their school system several open-air, and in some cases open-window, rooms. During the past four years I have participated in an investigation of the value of the open-air school rooms in comparison with properly ventilated rooms. Except for the fact that children and teachers who are undertaking this novel experiment tend to be enthusiastic and therefore to enter upon their tasks with somewhat more vigor, no marked differences have been discovered between indoor and out-of-door classes. The same tests were given to both groups. Muscular control, general intelligence, and psychological tests were given and the general work of the

school, as results in arithmetic, geography, and others, was considered. One year the open-air group was ahead and the next year the indoor group was ahead, and I think it safe to say that there exists no difference between the out-of-door work and the indoor work as far as the normal child is concerned.

In the out-of-door work we stumbled on something that was rather important. Those of you who have given the hygiene of handwriting any consideration know it is difficult to get the little fingers to hold the pencil. They start in right and then the fingers get down into a grip, and after a while the tongue hangs out and the whole body of the child gets to moving pretty much as the pencil moves because the child is fatigued with the muscular control. These children in the open-air rooms had to write with mittens on and strangely enough that mitten did the thing that we had been trying for,—they could not get that grip with the mittens on.

In the Montclair, New Jersey, public schools Superintendent Bliss has had open-window classes. These are much the same as open-air classes, save that they are in the building and under more nearly constant temperature conditions. They do turn the heat on when it gets very cold. Superintendent Bliss also found that there was no marked difference between the open-air and indoor classes and he is advocating doing away with these out-of-door and open-window classes except for children troubled with tuberculosis or those who are very anemic. Teachers might well follow the example of some of the rural school teachers of our state, who make it a point to conduct some parts of their school work in the open air, because many of our school buildings are not properly ventilated.

In most states there are regulations which either require or permit the testing of the children's sight and hearing by the school room teacher. From the standpoint of the school man these tests of eyesight have not been satisfactory because they tend to locate the difficulties that children have in looking at objects at a distance and too often fail to discover defects that interfere with the reading of books or close work. The only satisfactory method of dealing with the children's physical examination is to have a properly qualified physician who may be assisted by a trained nurse.

I need not dwell at length upon the attitude of most states and communities in respect to the common drinking cup, proper ventilating and heating of school buildings, and to the sanitary conditions surrounding the children. Most states have adequate machinery for inspection but as regards the rural school in particular there is great difficulty in carrying out proper orders. The letter of the law may be fulfilled as it is in one school building in Vermont, where a ventilating flue ends in a closed room near the roof. The spirit of the law, however, cannot be obtained until the patrons of the school understand the importance of proper health regulations.

Another measure that is used in many of our cities is the care of children's teeth. Here we have virtually a new field. I don't know whether it is true in Vermont or not, but I know in most other places dentists dislike particularly to deal with children. I am told that in one place in our state the dentists have objected very seriously to having anything to do with the children's teeth. I have taken the position myself that the dentist who will not care for my children's teeth may not care for mine. The dental clinics in New York and Boston have been doing a wonderfully effective service. I am not quite certain how it could be managed in the rural communities, but I do know that if there is any place in creation where there is need of dental service it is in the rural communities. I speak with some little knowledge of conditions. The only teeth I have ever lost were lost before I was fourteen years old when I was taken to a physician and because I had a toothache he extracted two teeth for me. I am impressed very often with the fact that what we need most of all is the consulting expert, preferably a medical man, who can tell the parent what to have done to the children. For some considerable time we have followed that method in our own family, and I know of a number of friends who have done the same,—taken the children to their physician and had him prescribe directly what shall be done. He has even sent the prescription to our dentist as to what shall be done to a tooth.

Provisions for safeguarding the health of city children are at present very common and in most cases effective. In our rural schools, where more than 60 per cent of our children attend, there are very inadequate health provisions. I think I am safe in saying that every investigation of this subject has shown that at present city school children tend to be more healthy than the rural children.

More than all else the parent must be convinced of the need for the care of a physician. There are in this country, according to the last census, 13,000,000 children below the school age who must be cared for in the homes. These children constitute a large, if not the largest, health problem before this body. Various states send the mother of each baby, at the registration of its birth, a book dealing with the baby's care. There are many "Better Baby" associations. Those of us who have to deal with the school begin to realize that had the parents of these babies had the proper kind of health instruction in school many of these present efforts would not be necessary. Slowly but surely there is coming into the regular work of our elementary and high schools a type of health instruction that does not hesitate to deal with matters of personal hygiene and with the care of children. I know of several schools at the present time that hire a baby to be brought into the school room so that the girls can learn how to take care of and bathe a baby, and those are public schools. Today it is a common practice in many of our better schools to have these girls know how to deal with the young child.

I shall have to confess quite frankly that the work we have done in our schools has not been as effective as we could wish, and yet I think it is worth our while to consider the possible effects that our very poor instruction has had in the matter of the use of alcohol and narcotics. We school men have been accustomed to laugh at the efforts that teachers have put forth. We have been compelled to put in our text books a certain percentage of pages dealing with tobacco and alcohol, and it has been the custom to get over these pages as soon as possible, and yet I am more and more impressed that this great wave of temperance that is sweeping over our country can be more or less directly traced to the instruction that we have been giving in our public schools. I believe it is an indication of what may happen when we get the right methods.

In New York City one of the big teachers' associations conducted an investigation as to what children really did get from the health instruction, and I am going to take the liberty of quoting just a few things that came out in this investigation. Too much emphasis in hygiene is directed to the personal health of the pupil, too little to the health and well-being of members of the home and of the community. The child is not interested in his own health, nor should he be except as he realizes in a rather vague way that "to be well and strong" enables him to do things that seem worth while, to help the members of the household, the teacher and other friends, to be useful generally. Actual answers to questions concerning health obtained recently in different elementary grades indicate the direction of pupils' interests. In the first four grades the following questions elicited the answers quoted:

What does it mean to feel well? The word happy was used in nearly all of the answers. These answers were given: "glad"; "feel like doing things"; "nice"; "not cross"; "laughing all the time"; "running and jumping."

Why do you wish to feel well? Nearly all said: "So I can play and go to school."

How can you become big and strong? "Bathe"; "Eat good food"; "Drink milk"; "Climb a lot"; "Mind Doctor (school physician) and Miss (gymnasium teacher)."

How can you help others grow big and strong? "Take the baby to the park every day"; "Make your small children to wear rubbers when it rains"; "Don't let your father smoke in the kitchen." One little first-grade girl with a strong instinct for self-preservation, said: "I wouldn't help other people, I might catch it myself."

In the fifth grade the following questions were asked: What does health mean to you? Why do you want to be well? How can you become well and strong? Name the persons who help you most in keeping well and strong.

Nineteen papers were collected. The idea of "feeling well," "happy," "strong," "bright," "lively," "not sick," was expressed fourteen times in

connection with the first question. One child said, "Health makes you feel like going some and not to feel lazy." Another, "To feel well makes you feel like being out of doors", and another replied, "Health is when you are in danger of Tuberkolosis."

To the second question fifteen pupils gave emphasis to the fact that they want to be well in order "to go to school," "to be out of doors," "to be able to see friends," "to romp in the Park," "to chase with my dog." One said, "I want to be well for when I am sick I have pains and that makes my mother sad." Another answered, "I want to be well for then you don't have to pay Dr.'s bills." This economic value of health was repeatedly expressed by the East-side boys.

To the third question, the advice given for maintenance of health was related generally to proper food, clothing, exercise, and sleep. Of the person who helped in keeping them well and strong, mother held first place, with the doctor a close second. With the East-side boys this order was reversed.

I have read these as indicating the type of information our children are obtaining in the school. Perhaps the big lack at the present time is their actually putting into practice the knowledge that they have. I am reminded of some experiences I had in Vermont sometime ago when I was anxious to see what was meant by the teaching of good habits and good conduct. I asked a teacher how she went about it to teach good conduct and if she would show me a lesson of that sort. She called a small boy up to the front and said, "What would you do if you were to pass in front of a person?" He replied, "Ask their pardon." At recess I deliberately put myself in front of the youngster and he forgot all about begging my pardon.

It is not too much to expect that, with the proper kind of training during their school course, when these boys and girls shall become fathers and mothers, the babies will be safely cared for during the most critical period of their lives, and the school health agencies can devote more of their time to providing healthy activities to the school. Medical and dental authorities can command all of the help of the Commissioner's department. The school shall try to live up to the requirements that you may set up, also to teach the important truths of personal hygiene, home science, and the important diseases of parenthood. A proper enforcement of the law can do a great deal to help the health of the country boy and girl but more than all else the parent must be convinced of the need for such care.

TUBERCULOUS MENINGITIS AS DISTINGUISHED FROM
INFANTILE PARALYSIS

B. H. STONE, M. D., DIRECTOR, LABORATORY OF HYGIENE

As might be expected, the most rapidly fatal form of tubercular infection is that which affects the meninges of the brain—tubercular meningitis. The course is usually only two or three weeks and the percentage of mortality has always been considered to be one hundred. This is not quite correct, however, as there has appeared in recent medical literature reports of a number of cases (34) of well authenticated tuberculous meningitis verified by finding the specific organisms in the spinal fluid with final complete recovery. I personally know of one such case.

An early diagnosis of the disease while always to be desired of course, has become of increasing importance since it is frequently confused in its early stages with two diseases of the nervous system which we are now convinced are communicable and epidemic in nature, and the early isolation of which is thus important—acute anterior poliomyelitis—and spotted fever or acute meningitis.

The number of deaths from tubercular meningitis in the registration area of this country is remarkably constant showing that it has no claim to be epidemic in character, and that little is being accomplished toward its prevention. The deaths from this cause in 1913 number 5,467; over 6.3 times as many as took place from infantile paralysis and over three times as many as resulted from acute meningitis during the same period. As these cases are thoroughly scattered, it is natural when we consider that the symptoms of the two diseases are similar; that some of them should be mistaken for infantile paralysis when the latter disease is prevalent. Tuberculous meningitis is essentially a disease of early childhood and has been observed as early as the third month of life. It may, however, occur at almost any age. I have seen one case of 45 years of age diagnosed at autopsy. Of the 5,467 cases occurring in 1913, the average age of death was nine years and mean age 2.9 years. Seventy-five per cent of all reported cases occur under the fifth year.

Naturally it is most often a complication of generalized tuberculosis, and different authors state that it occurs as a terminal event in from 15 to 60 per cent of children suffering from tuberculosis in other organs. It does not, however, by any means always occur as secondary to lesions elsewhere in the body. In a series of 105 cases, studied by Meyers, and reported in the American Journal of the Diseases of Children, 70 per cent show no evidence of lung tuberculosis, but glandular involvement to some extent occurred in many of these cases. The fact that the disease occurs in so large a percentage of cases, independent of any

pulmonary involvement, that it occurs in the milk drinking period of life, and often without history of direct exposure—75 per cent of Meyers' cases—is strongly suggestive of infection from bovine sources, through milk or its products in some at least of these cases.

The disease is frequently preceded by some of the acute diseases of childhood, measles and whooping cough leading in this role. These diseases of course bear no direct relation to the tubercular infection, but do without doubt lower the vitality and in that way allow quiescent glandular infection to become active.

The course of the disease is progressive, a prodromal period of one or two weeks preceding the appearance of well marked symptoms. The child does not seem as well as usual; a loss of weight may be noticed, anorexia, irritability, and lassitude are noticeable. If the child is old enough, it complains of headache. These symptoms may be noticeable over a period of one or two weeks, toward the end of which time, vomiting, projectile in character and without nausea, is likely to occur. This symptom rarely occurs before the end of the first week. During this time there is very apt to be obstinate constipation. These symptoms grow progressively worse until we have a condition of marked cerebral irritation, in which there is fever of a low type, projectile vomiting, severe headache, giving rise often to a screaming and "hydrocephalic" cry, stiffness or rigidity of the neck, twitching of the muscles and perhaps convulsions. The pupils are contracted and the pulse rapid, and the child, in bed at this stage, always assumes a position on its side with knees flexed and head well drawn back. The patient gradually becomes stupid, and is aroused with difficulty. A low form of delirium may be present, with retraction of the head and rapid pulse. These symptoms become more and more aggravated and added to them are more pronounced pressure symptoms. The pupils are dilated, ptosis or strabismus are apt to be present. Localized facial paralysis, monoplegia, or hemiplegia, are apt to develop. The localized facial palsies are an important sign of tuberculous meningitis. They are caused by the pressure of excessive accumulation of fluid and are apt to be evanescent in character, perhaps on one side of the face at one time and on the other when next seen. Convulsions may appear now if not before and occasional vomiting is still a symptom. The abdomen is retracted, the pulse slow and irregular. Chynes-Stokes breathing may appear. Babinski's reflex (extension of great toe on tickling bottom of foot) is apt to be present in this stage and, if so, is a symptom of differential value as it rarely appears in acute meningitis. Kernig's sign (inability to straighten leg when patient is in sitting posture) may be present, but is not nearly so constant as in acute meningitis. It was present in only 27 per cent of Meyers' cases. McEwen's sign is useful now if the child is not over 2 years of age. It consists in the eliciting a tympanitic note on percussion over the pterion and indicates hydrocephalus. The child should be in the

sitting posture with the head slightly turned toward the side being percussed. All symptoms grow progressively worse. Diarrhea with incontinence of urine and feces is usual; convulsive twitchings are marked; and the patient dies in convulsions or coma.

At no time is the temperature very high as in acute meningitis. At no time is there hyperaesthesia as in poliomyelitis. The Von Pirquet reaction is usually positive.

This disease is to be distinguished from acute meningitis clinically by the insidiousness of its onset, the more gradual development of the symptoms, the comparatively low temperature, the absence of pupuric spots to which may be added the difference in the response to Babinski's and Kernig's signs.

Tubercular meningitis is to be distinguished from acute anterior poliomyelitis, the symptoms which have been given you with such clearness, at these schools, (1) by its more insidious and gradual onset, (2) by the longer duration of the febrile stage, (3) by the projectile vomiting occurring later in the disease, (4) by the more constant and more profound character of the stupor, (5) by the marked reflex rigidity of the neck and back appearing not before the second week, (6) by the absence of spontaneous nerve pain (except headache), (7) by the absence of pain on passive motions, and (8) on muscle pressure.

At the very outset the two diseases may be confused, but the continuously increasing stupor of the tuberculous case with the lack of hyperaesthesia, the convulsions, and the real and considerable development of rigidity soon make the differentiation definite.

The distinction between tubercular meningitis and *cerebral type* of infantile paralysis, in the pre-paralytic stage, is much more difficult, and it is the diagnosis of these two that an examination of the spinal fluid is most important, and now that we know that the operation of lumbar puncture is associated with no danger and is an actual wise therapeutic measure in meningitis, it should always be early resorted to in doubtful cases.

The fluid is usually very cloudy in epidemic meningitis due to the presence of pus cells; slightly cloudy in tubercular meningitis due to increase of fibrin and cells, and clear in poliomyelitis. The pressure is usually increased in all cases but most noticeably in tuberculous meningitis. On both tuberculous meningitis and poliomyelitis the increase in cells of the mononuclear type above the normal is very noticeable. There is this difference, however, that the cells in the polio cases rapidly decrease at the end of the first week while in the tuberculous cases, they remain high until death. Globulin is present in both fluids, tending to increase in the fluid of the polio case as the cells decrease. Careful examination of the centrifugalized fluid will show tubercle bacilli in a very large per cent of cases of tubercular meningitis. Animal inoculations are always conclusive.

Thus an examination of the fluid furnishes us an almost certain means of excluding both tubercular and acute meningitis cases, and very strong presumptive evidence toward the positive diagnosis of poliomyelitis.

MILK PRODUCTION AND DISTRIBUTION

Much inquiry has been received by the State Board of Health in recent months as to the pasteurization of milk and the feasibility of enforcing regulations or ordinances requiring the pasteurization of all milk delivered within a city or town. For the present, this will not be taken up by the State Board of Health but will be left for action of local boards of health in regard to their own milk supply. In order that there may be some uniform system, the following recommendations are made to towns having large milk routes:

In this time of soaring prices, all recommendations for handling food products must take into consideration the economic as well as the sanitary elements of the problem and the changes in method demanded by this element so often ignored in sanitary recommendations requires in some instances a re-adjustment of procedures hitherto deemed satisfactory. This in the milk industry, a concentration of distribution machinery is of great economic importance. It is almost criminally wasteful to have certain portions of a town visited by half a dozen delivery teams when one could do the work as well. This principle is gradually working to the elimination of many and the establishment of the few milk routes in our cities and towns. Economically this is proper but unfortunately such a method increases the danger of spreading communicable diseases.

Under older conditions with each dairyman delivering his own milk to comparatively few customers, infection in his milk could be spread by this means to only the few users of that supply, while now the same amount of infective material is spread by means of common milk depots to a large number. And no amount of care in dairy inspection can absolutely assure us against this danger. Milk spread epidemics have occurred as often along the routes of the most careful producers as on the notoriously careless. Inspection of dairies and herds is valuable and this should in no way be taken as detracting from the worth of such work. Inspection protects from filthy milk and the milk of diseased cows, but it cannot protect from the danger of the unsuspected carrier or the dairy employee in the incipient stages of some communicable respiratory disease.

The only sure method of accomplishing this result seems to rest in some treatment of the milk between the time it leaves the milker and dairy worker and reaches the ultimate consumer which will insure destruction of disease germs which may have gained access in one way or another to the supply. The only method which answers these require-

ments and at the same time leaves the product uninjured, is the process known as pasteurization. Many people are prejudiced against this treatment for one of the following reasons:—

1. Because they have noted a disagreeable cooked taste in pasteurized milk.

2. Because they have noted a failure of the cream to rise on pasteurized milk.

3. Because they have noticed a tendency for pasteurized milk to sour more quickly than that which has been untreated.

4. Because they have noticed that milk which has been pasteurized has failed to sour in the normal way, but has become putrid instead.

5. Because they have read that the pasteurization process destroys some of the milk ferments, vitamins or some other little understood properties of natural raw milk which are essential in infant feeding.

These objections are all valid in an improperly pasteurized product but do not apply when all the essential steps of the process are carefully observed. Proper pasteurization of milk consists (1) in heating it quickly to a temperature of 145 degrees F. in some apparatus which will heat no portion of it higher than 150 degrees F. (2) Holding the milk at this temperature for thirty minutes and (3) quick cooling to a temperature below 50 degrees F. where it must be kept until used.

Milk so pasteurized is free from the living germs of tuberculosis, typhoid fever, diphtheria, scarlet fever, streptococci, para typhoid, whether or no it may have been infected with these germs before the process. It has no unnatural taste. It will keep longer than the unpasteurized product. It will form a good cream line. It will finally sour in a normal manner and its food properties are in no way injured.

1. If pasteurization plants are installed, they must be approved by the state board and subject to inspection by the State Board of Health and operated according to the following rules:

The Held method of pasteurization as herein provided alone shall be used. The milk, skimmed milk or cream, shall be uniformly heated to a temperature of between one hundred and forty degrees (140) Fahrenheit and one hundred and forty-six (146) degrees Fahrenheit, and maintained uniformly at this temperature for thirty minutes.

The milk or milk products thus pasteurized shall be cooled forthwith to a temperature of forty-five (45) degrees Fahrenheit or less. All apparatus for the purpose of clarifying, filtering, pasteurizing and cooling shall be **so constructed that all parts are readily accessible for inspection, cleansing and sterilizing.**

All pasteurizers operated for the production of pasteurized milk, shall be equipped with an apparatus regulating automatically the supply of heat so as to correspond with and produce the required temperature. The automatic thermo-regulator shall be accurate and shall be approved by the State Board of Health.

A recording apparatus shall be installed upon all pasteurizers to record, during operation, the temperature of the pasteurizing product. The thermometer of this recording apparatus shall be accurate and shall be immersed in the milk in such manner that it is not exposed to escaping steam or other heat except in the heated milk and except when the pasteurizing is done in a final container, in which latter event the thermometer shall be so placed as to accurately indicate the temperature of the pasteurized product. The records made by this recording thermometer must be accurate and made on a daily chart which shall be dated and preserved for the inspection of the health officer.

The automatic thermo-regulator and recording apparatus may be combined in one instrument.

Pasteurized milk, or skimmed milk, shall be delivered to the consumer within twenty-four hours after pasteurization and shall not contain more than fifty thousand (50,000) living bacteria per c. c.

No milk, skimmed milk, or cream shall be pasteurized a second time.

Where the establishment of pasteurization plants, municipal or privately constructed and operated, in accordance with these rules, is practical, the State Board of Health recommends this as the surest way of providing a safe and satisfactory milk supply.

That some idea of the cost of such a plant may be had the following is quoted from the "Public Health News" published by the Department of Health of the State of New Jersey:

Owing to certain variable factors, such as location of plant and the nature and size of apparatus, it is difficult to establish a standard for the cost of pasteurizing. We estimate that a hundred pounds (about 46 1-2 quarts) of milk may be passed through the pasteurizing apparatus and prepared for bottling at a cost of five cents. Including labor, refrigeration, interest on investment and certain other overhead charges the total cost will approximate one cent a quart.

The accompanying table gives the estimated cost of operating a plant where 300 quarts of milk are pasteurized daily. It should be understood that the actual cost may vary somewhat depending upon local conditions and methods of management.

ESTIMATED COST OF PASTEURIZING MILK IN A PLANT HANDLING 300 QUARTS PER DAY

Estimated cost of equipment (pasteurizer, cooler, two pumps, sanitary pipes, fittings, engine, etc.)	\$500.00
Estimated cost of operating per day:	
Interest on investment at 6 per cent	\$.08
Depreciation and repairs at 25 per cent	.34
Coal	.30
Water	.06



Ice	.50
Labor	1.50
Incidentals	.22

\$3.00

Total estimated cost of pasteurizing 300 quarts \$3.00

Estimated cost of pasteurization per quart01

The increased cost of milk due to pasteurization will be borne by the dealer or the consumer, both of whom are benefited by the process. The benefit to the dealer consists in lessening his losses due to souring, making his product meet the approval of health authorities, removing the liability of having the sale of his milk stopped because of an epidemic, and providing a product for which there is bound to be an increased demand as people appreciate more fully the merits of pasteurization. The consumer is benefited because of the added safeguard to his health.

GENERAL INSTRUCTIONS FOR HAY-FEVER SUFFERERS

As August and September are the most serious months for hay-fever, the American Hay-Fever-Prevention Association has issued the following general instructions for hay-fever sufferers:

All cases of hay-fever are due to the inhalation of pollen, the majority of these being due to useless weeds. The cases that develop before August are caused chiefly by the pollen of neglected grasses and of spring and summer-blooming weeds.

The principal causes of hay-fever cases developing in the Fall are the various form of rag-weeds, whose capacity for distributing pollen is measured by the hundred millions. The most common forms of this weed are, the common rag-weed (*Ambrosia artemisiaefolia*) found in the greater part of the United States east of Kansas, the giant rag-weed (*Ambrosia trifida*) growing in moist areas of this section, and the western rag-weed (*Ambrosia psilostachya*) principally found west of Kansas.

While the rag-weeds are the chief causes of Fall hay-fever, there are other weeds, such as the marsh alder (*Iva axillaris*), etc., which flower at this season, so that all weeds should be treated alike to insure safety against hay-fever.

In order to avoid hay-fever, persons susceptible to it should see that the neighborhood of their residence is free of tall grasses and weeds, and especially of the rag-weeds. The three squares in each direction should be inspected, and if weeds are found, the owner should be urged to have them cut at once. Where this is refused, these cases, in the interest of general sanitation, should be reported to the health authorities for

violating the grass-weed ordinance. Where no such law exists, efforts should be undertaken to have such a law passed as soon as practicable.

In cases in which the above cannot be carried out, it is sometimes preferable to have the weeds in the immediate neighborhood cut at one's own expense than suffer the torture of a prolonged attack of hay-fever from this neglect. It must be remembered, however, that pollen scatters rapidly when borne by the wind, and a single lot full of weeds in the same square may be more irritating than an acre at a distance of several squares.

Where the neighborhood cannot be cleared of hay-fever weeds, the next consideration is a temporary change of residence. The American Hay-Fever-Prevention Association is in constant receipt of letters inquiring for the best resorts for hay-fever sufferers. The majority of mountain and seaside resorts, unfortunately, are infected with hay-fever pollens, so that visits to these places in the hope of getting relief are usually disappointing. A careful investigation should always be made and, unless it is found that all weeds and high grasses are systematically cut, such places should be avoided.

As hay-fever is due to pollen of neglected weeds, a temporary visit to a more central part of the home town, at a sufficient distance (1-2 mile) from such weeds, will usually give entire relief.

Persons susceptible to hay-fever should avoid renting or buying property in a neighborhood with neglected grass and weeds. This practice would probably be of effective assistance in correcting such neglect.

Hay-fever sufferers should avoid unnecessary exposure to pollen. Roads passing near sections full of grass and weeds while in bloom, are usually full of pollen which is inhaled with the dust. An hour of pleasant driving may therefore result in a night of suffering.

Constitutional conditions have been found to have little influence except as a predisposing cause. The real cause of hay-fever is the inhalation of pollen, and the avoidance of this means no hay-fever.

The prevention of hay-fever is fundamentally a simple proposition. It means the enactment and enforcement of an ordinance to cut grass and weeds. The efficacy of this has been shown in New Orleans, La., Asheville, N. C., and a number of other cities where hay-fever is on the disappearing list. Another year should see similar effects in the majority of towns and cities.

VENTILATION SCREENS OF CLOTH

Much is being said and written regarding the necessity of more fresh air, both in the office, in the home and in the school room.

No one can do a full day's work in a stuffy office or school room.

Neither can one get a comfortable night's rest and sleep in a bedroom that is not properly ventilated. On the other hand, no one desires to work or sleep in front of a window where there is a draft.

How, then, are we going to overcome this objection? This matter has been freely discussed by physicians, school teachers and others who are interested in better sanitary methods. Many kinds of ventilators have been used in windows to permit of the entrance of fresh air into the overheated room, but in nearly every case, while permitting the fresh air, it also occasioned drafts which are almost as uncomfortable and injurious as the impure air which they were trying to replace.

Recently there has come into use a screen or ventilator made of a specially treated cotton cloth, which takes the place of glass windows in school rooms. The doors and windows are first closed and the room comfortably heated before the pupils arrive. While the school is in session, the windows are thrown wide open and the cloth ventilators are placed under the lower sash. These cloth ventilators are made in several heights and are made adjustable in width so that they will fit any ordinary window. Cold, fresh air filters in through the cloth from the outside, thus making the room pleasant to work in and invigorating the pupils.

It has the added advantage of keeping out of the room all soot, dust, dirt, rain and snow. The ventilator is covered with a light colored cotton cloth which admits the light as well as the air, but excludes all dust and dirt.

The simplicity and cheapness of these cotton ventilators makes the plan available not only for every school room, but for the home, for the office, for institutions, hospitals, etc.

In the home it should be used in the kitchen, living rooms and bedrooms, and is especially desirable where children sleep. The fact that it cannot be seen through makes it particularly valuable for bedrooms and bathrooms.

These cloth ventilators or screens are now being produced at such a low price and there is such a large and growing demand for them, that they are being sold now by practically all hardware jobbers, retail dealers and department stores.

HOW TO USE SKIM MILK

There are many places in which skim milk is not used as completely as it might be. On farms there is often more than can be profitably fed to calves or pigs. In creameries much of it is made into cottage cheese, but even then the whey, which is really rich in good materials, goes to waste.

Many people do not realize how nutritious skim milk is. They imagine that because it so generally has little or no commercial value it is hardly fit for human food. As a food it is not so valuable as whole milk, and cannot take the place of the latter in the diet of children. Nevertheless, skim milk can be used to great advantage in combination with other food materials, especially in cooking, and is altogether too valuable to be wasted, according to home economics specialists of the United States Department of Agriculture.

A quart of whole milk weighs $34\frac{1}{4}$ ounces, or a little more than 2 pounds, nearly 30 ounces of which is water. The remaining solid matter contains very useful food materials. Slightly more than 1 ounce is protein, a very important muscle builder, and one of the most extensive of the substances needed by the body. About 3 1-3 ounces consists of butter fat, and 1 2-3 ounces of milk sugar. These two materials are used by the body to provide it with energy, much the same as fuel is used to produce steam and power in the engine. The quart of milk also contains about one-quarter of an ounce of mineral matter, small quantities of which are very necessary for the growth and general upkeep of the body.

As the fat is separated to form the cream some of the protein, milk sugar, and mineral matter go with it, but by no means all. The protein remain; therefore a quart of separator-skimmed milk provides slightly more of this indispensable and costly material than does a quart of whole cream. It contains in all about 1 1-5 ounces of protein, to 1 1-4 ounces of milk sugar, about one-quarter of an ounce of mineral matter, and a little fat, the last named depending, of course, upon the completeness of the separation. This means that, quart for quart, it would furnish the body with slightly more protein and milk sugar than whole milk does, and practically the same quantity of mineral matter, though far less fat. In other words, as a tissue builder it is equal to whole milk, and as an energy yielder not nearly so good. Since, as a rule, the tissue-building materials are contained in the more expensive foods (meat, eggs, etc.), and the energy-yielding materials can be largely provided by cheaper foods (bread and other cereal foods, fats, potatoes, etc.), it seems doubly wasteful not to use skim milk.

Those who buy milk seldom have much skim milk to use unless they follow the custom of skimming their own cream. That there is economy in so doing is shown by the following: A quart of whole milk usually sells for the same price as a half pint of cream, which contains about one-fifth ounce of protein, $1\frac{1}{2}$ ounces of fat, not quite one-third ounce of milk sugar, and a very little mineral substance. If this is compared with a quart of whole milk, which very commonly can be purchased for the same sum, it will be seen that the purchaser in buying a half pint of cream instead of a quart of milk sacrifices nearly an ounce of protein, 1 1-3 ounces of sugar, and one-fifth ounce of mineral matter. He gets, of course, a trifle more fat—about one-fifth ounce, or a level teaspoonful—but this is

small in comparison with what is sacrificed. Some people, therefore, buy whole milk instead of cream in order to have for family use the nourishment contained in the milk after it has been skimmed. Home-skimmed milk is, of course, richer in fat than that which has been skimmed by a separator, but it can be used in the same way.

The uses of skim milk are many and in cooking it adds to quality as well as to food value. If used in place of water in bread it adds about as much protein to one pound of bread as there is in an egg. Skim milk used in place of the usual half milk and half water, of course, increases the quantity of protein in a loaf by the amount that is contained in half an egg. The saving involved in the use of skim milk in bread, however, is small compared with that involved in its use in the preparation of cereals, for, while in bread the milk is only about one-third of the flour, in the preparation of cereals the volume of milk is usually three or four times that of the cereal. To cook a cupful of cereal in 3 cupfuls of skim milk instead of 3 of water adds as much protein as that contained in 3 eggs.

There are many dishes which may be described as vegetable milk soups, usually made by combining milk and the juice and pulp of vegetables. This mixture is then thickened with flour and starch and enriched with butter or other fat. If a fire is kept all the time and the cost of fuel need not be taken into consideration, the following method is recommended as a means of utilizing skim milk: Chop the raw vegetable or cut into small pieces. Put it with the skim milk into a double boiler and cook until the vegetable is tender. The mixture can then be thickened and enriched as described above. By this method no part of the vegetable is thrown away and the liquid of the soup, instead of being part milk and part water, is all milk. A soup so made, therefore, usually has about twice as much protein as that made in the other way, and has the additional advantage of a particularly good combination of mineral substances, for milk is rich in calcium and phosphorus and the vegetables are rich in iron.

In making these soups use is made of many of the parts of the vegetable that are ordinarily thrown away, namely, the outer and tougher leaves of lettuce, which has a higher iron content than most other vegetables; the tops of celery; and even the tops of onions. Small quantities of cooked vegetables left over from other meals may be utilized in these and in other kinds of soup.

If in making these soups the vegetable is chopped finely in the meat grinder, they need not be strained before being served. If the vegetable is not chopped, the soup may be put through an ordinary strainer, or such vegetables as carrots or potatoes may be cut into slices and left in the liquid, in which case the dish resembles a vegetable chowder. These soups may be thickened with stale bread.

SOUP RECIPE

- 1 quart of spinach (4 ounces).
- 1 thin slice of onion.
- 2 slices of stale bread (2 ounces).
- 1 quart of skim milk.

Put the spinach and onion through the meat chopper, following them by the bread, in order that there may be no waste. Put into a double boiler with the milk and cook until the spinach is tender.

There is a class of extremely valuable dishes which are sometimes called "cereal milk puddings," usually made by cooking equal volumes of a cereal (usually rice) and sugar in 12 times the volume of milk—for example, one-fourth cupful of rice, one-fourth cupful of sugar, and 3 cupfuls of milk. When a fire is kept constantly and the cost of fuel need not be considered, such a dish may be made with skim milk, and very much more than 3 cupfuls of the milk used. As the water evaporates, the dish becomes richer and richer in protein.

Oatmeal may be submitted for rice in the above-described pudding and adds somewhat to the protein value, though the quantity of cereal used is so small that this is not important.

Thin cereal-milk puddings, made by slowly cooking down until thick 10 or 12 parts of skim milk and 1 of rice, oatmeal, or similar cereal, may be used in place of cream with stewed fresh fruits or cooked dried fruits or baked apples.

—*Dept. of Agriculture, Dairy Division Bulletin.*

YOUR FAMILY DOCTOR

Thousands of doctors will go into military service during the next few months. Many people will not realize until their family physician has gone how much they have depended upon his skill and judgment for their well being.

The perplexing question will be, "Whom shall we have for a doctor or what shall we do?" Naturally many will not decide this question until trouble arises and here is where mistakes will be made which may prove most unfortunate.

Rather than consult a strange doctor some will endeavor to tide over with patent medicines with the result that serious disorders will get such a headway that they cannot be checked. Others will try to get along without a physician until they find the malady well developed and too late for a doctor, when called, to render material assistance. It is believed that the excessive deaths among children in the countries abroad, during the first year of the war, were in a great measure due to tardiness in

calling physicians. We should heed good advice and not sacrifice our children because of indecision nor jeopardize our own health by gambling with patent medicines.

Not all the good doctors will go to war and those at home will be kept very busy with the added duties. Many of these doctors are arranging to share their fees with their brothers in the service and by so doing are rendering patriotic service. An overworked doctor cannot render as satisfactory service as he might if not tired out. There are many doctors overworked because of the thoughtlessness of their patients and we take the liberty of offering these suggestions:

1. Do not wait until evening or night to call your doctor when you could have called him earlier.

2. When calling a doctor do not send the message to come "at once" unless the case is urgent.

3. Leave for the doctor an idea of the service required, whether medical, surgical or otherwise.

By calling the doctor in the day he will be able to arrange his calls so that he will not have to travel the same ground over several times during the day, enabling him to respond to all calls more promptly and to attend to a larger number of patients. Unwarranted calls for the doctor to come "at once" always disconcert the busy doctor and may deprive another seriously ill of the immediate attention he or she was about to receive. Stating the nature of the illness or injury when calling a doctor enables him to come prepared to render his best service at once. He cannot carry all of his instruments and drugs to every case.

Conservation along all lines is being urged but do not forget the doctor; he is human, his labors are arduous and must be conserved if the life and health of the community are to be maintained.

—*Com. State Department of Health Bulletin.*

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POLIOMYELITIS

On June 16, cases of infantile paralysis were discovered in the Towns of Waitsfield and Barre Town. Within two or three days, thereafter, it was found that cases existed in Montpelier, but had not been recognized on account of their mild type. Although strict quarantine regulations were at once established, infection had apparently become widespread in Montpelier and new cases appeared daily for a time. The following regulations were adopted in Montpelier, Barre, and Barre Town on June 24:

1. Children under 16 years of age shall be excluded from all public gatherings held indoors or outdoors, including schools, Sunday schools, churches, theatres, picnics, ball games, places of amusement and all public gatherings of any kind whatsoever.

2. Children under 16 years of age shall not be served at any ice cream counter, soda water fountain, restaurant, or any place where food or drink is sold to be consumed on the premises, exceptions being made of hotels.

These regulations shall continue in force until vacated by a written order signed by the Secretary of the State Board of Health or the local health officer.

In Waitsfield, a notice was served upon the head of every household in the town, requiring that children under sixteen years of age be kept upon their own premises. On July 5, a meeting was called at Montpelier for all the health officers of Washington County and the towns near the county line or on the immediate lines of travel. As a result of this, many local boards of health decided to take advantage of the new law No. 194 of the Laws of 1917 in regard to quarantine of children coming

from the infected district. Occasional cases had, by this time, been discovered in other nearby towns and in every town where a case appeared, restrictions were instituted, usually to the extent of closing all places of public assemblage and limiting the movements of children under sixteen years of age. Ice cream and soda water fountains were forbidden to serve children under sixteen years of age.

At a meeting of the State Board of Health with the Governor on July 17, after thorough consideration, it was decided, as a matter of precaution, to adopt the following order which was forthwith promulgated:

Burlington, July 17, 1917.

To date we have had in the state 68 cases of infantile paralysis this year. This is a greater number of cases than we have had any year during the last five years with one exception. Sixty-one of these cases and six deaths have occurred since June 16th. These cases with three exceptions have been confined to Washington County. There are good reasons for hoping that this outbreak may be checked at this time. In past years we have had reason to think that large general gatherings of people from many towns have distributed this infection. August and September in past years have been our worst months as far as this disease is concerned.

In view of these facts the attention of local boards of health is hereby called to Act No. 194 of the Laws of 1917 and such boards are directed to make and enforce regulations in the several towns whenever local conditions require such action. When one or more cases develop in any town the local board of health should take action either prohibiting all public gatherings or excluding all children under 16 years of age from such gatherings, also from lunch, soda water and ice cream counters and other public eating and drinking places.

It is hereby ordered that no fairs, Chautauquas, street carnivals or circuses be held in the State of Vermont until further notice.

By order of the State Board of Health,

CHARLES F. DALTON,

Secretary.

Objection to the order of the Board was made by the Community Chautauquas, Inc., and at a hearing in Montpelier, July 23, they requested through counsel, that the part of the order relating to Chautauquas be set aside. This was refused and the Community Chautauquas, Inc., secured from United States District Judge Harland B. Howe an injunction restraining the State Board of Health and local boards of health from enforcing the order so as to prevent the holding of Chautauqua assemblies. On motion of the Attorney-General, a hearing on this temporary injunction was granted July 30 before United States District Judge C. N. Hough. As a result of this hearing, the injunction was dissolved and the order remained in force.

The incidence by weeks from the beginning of the epidemic on June 16, until the time of going to press is shown by the following table:

POLIOMYELITIS IN VERMONT.

WAITSFIELD,	1st case, June 16	
June 16-23.....	3 cases,	
June 24-30.....	0 cases,	
July 1- 7.....	5 cases,	8 cases, 1 death.
BARRE TOWN,	1st case, June 16	
June 16-23.....	3 cases,	
June 24-30.....	0 case,	
July 1- 7.....	1 case,	
July 8-14.....	1 case,	
Aug. 7	1 case,	6 cases, 1 death.
MONTPELIER,	1st case, June 19	
June 19-23.....	6 cases,	
June 24-30.....	13 cases,	
July 1- 7.....	10 cases,	
July 8-14.....	8 cases,	
July 15-21.....	1 case,	
July 24	1 case,	39 cases, 3 deaths.
WASHINGTON,	1st case, June 27	1 case.
FAYSTON,	1st case, June 29	1 case.
BERLIN,	1st case, July 5	1 case.
WATERBURY,	1st case, July 9	
July 9-14.....	2 cases,	
July 15-21.....	1 case,	
July 23-28.....	1 case,	
Aug. 2	1 case,	5 cases.
EAST MONTPELIER,	1st case, July 12	1 case.
WORCESTER,	2 cases, July 12	2 cases.
DUXBURY,	1st case, July 13	1 case, 1 death.
ROCHESTER,	1st case, July 13	
July 13-14.....	2 cases	2 cases, 1 death.
BARRE CITY,	1st case, July 19	
July 19-21.....	1 case,	
July 22-28.....	3 cases,	
July 29-Aug. 4.....	3 cases,	
Aug. 8	3 cases,	10 cases.
BOLTON,	1st case, July 29	1 case.
ORANGE,	1st case, Aug. 5	1 case.
TOTAL		79 cases, 7 deaths.

REPORT OF THE LABORATORY OF HYGIENE.

The figures below represent the analytical work performed in the Laboratory of Hygiene during the months of May, June and July, 1917.

Cultures from the throat examined for diphtheria bacilli.

	May.	June.	July.
Positive	41	36	62
Negative	327	244	267
Total	<u>368</u>	<u>280</u>	<u>329</u>

Specimens of blood examined for the Widal reaction.

	May.	June.	July.
Positive	7	6	8
Negative	36	48	66
Total	<u>43</u>	<u>54</u>	<u>74</u>

Specimens of blood examined for malarial parasites.

	May.	June.	July.
Positive			
Negative			2
Total			<u>2</u>

Specimens of sputum examined for tubercle bacilli.

	May.	June.	July.
Positive	25	22	28
Negative	183	195	154
Total	<u>208</u>	<u>217</u>	<u>182</u>

Specimens of blood examined for the Wassermann reaction.

	May.	June.	July.
Positive	12	16	5
Negative	39	61	41
Suspicious	3	3	4
Total	<u>54</u>	<u>80</u>	<u>50</u>

Specimens of urethral discharge examined for gonococci.

	May.	June.	July.
Positive	25	20	13
Negative	22	18	29
Total	47	38	42

Specimens of water examined for potability.

	May.	June.	July.
Ground waters			
Normal	24	53	40
Showing present pollution	2	4	13
Showing past pollution	6	15	25
Showing past and present pollution		1	4
Surface waters			
Normal	2	6	9
Polluted	2	4	4
Total	36	83	95

Specimens of milk (detail table following) examined for compliance with legal standards.

	May.	June.	July.
Above standard	31	20	25
Below standard	40	25	22
Total	71	45	47

Specimens of food products (detail table following) examined for compliance with legal standards.

	May.	June.	July.
Legal	31	16	33
Adulterated	1	14	11
Total	32	30	44

Specimens of drugs (detail table following) examined for compliance with legal standards.

	May.	June.	July.
Legal	20	20	11
Illegal	1	5	7
Total	21	25	18

Specimens of liquor examined for the Commissioner of State Taxes.

	May.	June.	July.
Legal	131	20	1
Illegal			
Total	131	20	1

Examinations for the Department of Justice.

	May.	June.	July.
Autopsies (medico-legal)	3	4	
Miscellaneous examinations	5	9	
Total	8	13	

Autopsies for cause of death where no foul play was suspected.

	May.	June.	July.
Autopsies	4	2	2
Miscellaneous examinations in connection there- with			1
Total	4	2	3

Miscellaneous examinations (unclassified).

	May.	June.	July.
Positive	64	39	59
Negative	98	83	93
Total	162	122	152
Grand total	1185	1009	1039

Liquors examined for Commissioner of Taxes during May, June, July, 1917.

Variety	Legal	Not legal
Whiskey	59	0
Brandy	7	0
Rum	5	0
Gin	15	0
Wine	19	0
Malt Liquors	34	0
Miscellaneous	13	0
Total	152	0

RESULTS OF EXAMINATION OF SAMPLES OF MILK—
NO. 118, ACTS OF 1908.

MAY, JUNE AND JULY, 1917.

BURLINGTON.

*Above Standard.**

Newton (3)	McGrath (2)
Callen (2)	O'Brien
St. John	University M. & G. Co. (3)
Murray	Rosenberg
Suckstorff (2)	Spear St. Dairy
Tyler	(Stewart farm-2)
Bixby	(Holt farm-2)
MacMurphy (3)	Steele & Butler
Catlin	Manwell farm
Calkins (3)	Larrow

Below Standard—Not Absolutely Clean.

Genereaux (3)	G. Miller
H. Gladstone	Saiger (3)
Bostwick Bros. (3)	Spear Street Dairy
H. W. Little	(Holt farm)
Poquette (2)	(Stewart farm)
Demper	Bixby
Ritchie's Creamery (3)	Lareau Bros. (2)
Leary Estate (3)	Steele & Butler
McGrath	Mercure
Barber (3)	Soule & White (2)
Larrow	Alger
Suckstorff	St. John (2)
O'Brien (2)	Moscowitz
Murray (2)	Glastone
Callen	Welch
Rosenberg	Saltus

* MILK STANDARD—1. Milk is fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

Below Standard—Dirty.

Barber

Low Quality Chemically and Physically.

Glaston

Allen (2)

COLCHESTER.

Above Standard.

Gamelin

McBride

Below Standard—Not Absolutely Clean.

Richard

Roy

Mercure

SHELBURNE.

Above Standard.

Morrissette

Below Standard—Low Quality Chemically and Physically.

Morrissette

MONTGOMERY.

Below Standard—Not Absolutely Clean.

C. P. Berry

BRANDON.

Above Standard.

F. H. Farrington

W. J. Powers

Below Standard—Chemically and Physically.

C. J. Rowe

DANBY.

Above Standard.

F. Raiche

Below Standard—Chemically and Physically.

Fred Hines

WESTMINSTER.

Above Standard.

W. E. Pierce

H. W. Leach

L. G. Converse

C. E. Robertson

Below Standard—Not Absolutely Clean.

W. S. Fenn & Sons

C. B. Torrey

H. E. Richardson

Henry Wood

J. F. LaRose

H. A. Thompson

F. Farr

Rolo Metcalf

C. A. Peck

W. Johnson estate

Eugene Clark

Below Standard—Dirty.

J. H. Wright

C. E. Howard

Below Standard—Low Quality Chemically and Physically.

A. Y. Bigelow

WINDSOR.

Above Standard.

C. L. Harriman (Hunt farm)

SUBMITTED SAMPLES OF MILK FOR MAY, JUNE AND JULY, 1917.

Above Standard 33

Below Standard:

Not Absolutely Clean 4

Dirty 3

Low Quality Chemically 4

 Total 44

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE FROM APRIL 1 TO AUGUST 1, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination				Remarks	Total
					Under "Food and Drug Law"		Submitted Domestic Product			
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Legal	Adulterated	Mis-branded			Whole	Unwhole
Butter.....	73262A	Apr. 29	*	Green Mountain Cold Spring Creamery Co.	Addison Co. Starksboro	1	.....	.....	.....	.....
"	73117A	"	"	Orwell Creamery	Orwell Middlebury...	1	.....	.....	.....	.....
"	73800A	May 15	"	"	"	1	.....	.....	.....	.....
Addison County...	Total...	.....	.....	.....	.....	3	.....	.....	.....	3
Maple Syrup.....	72903A	Apr. 26	Arthur Michaels	.....	Bennington Co. Bennington	1	.....	.....	.....	.....
"	72902A	"	E. D. Moore.	.....	"	1	.....	.....	.....	.....
"	72900A	"	W. D. Stockwell.	.....	"	1	.....	.....	.....	.....
"	72989A	"	J. F. Waters	.....	"	1	.....	.....	.....	.....
"	72901A	"	D. E. Bushnell.	.....	"	1	.....	.....	.....	.....
"	72988A	"	Henry Thompson.	.....	"	1	.....	.....	.....	.....
" Sugar	72987A	"	.....	.....	"	1	.....	.....	.....	.....
Vanilla Ice Cream...	75496A	June 27	Hard's Drug Store.	Manchester Dairy Co.	Manchester.	1	.....	.....	9% butter fat.	.....
"	75491A	"	V. I. Smith.	Coon's Ice Cream Co.	Arlington	1	.....	.....	16% "	.....
Strawberry "	75480A	"	Fred Monso.	E. Dennison.	"	1	.....	.....	7% "	.....
Vanilla	75494A	"	Ward's Drug Store.	Ward's Drug Store	Bennington	1	.....	.....	14% "	.....
"	75498A	"	W. L. Gokay.	W. L. Gokay.	"	1	.....	.....	14% "	.....
"	75497A	"	C. L. Hudson.	C. L. Hudson.	"	1	.....	.....	17% "	.....
"	75493A	"	Pappas & Violas.	Pappas & Violas	"	1	.....	.....	16% "	.....
"	75489A	"	Cris Savas.	Cris Savas	"	1	.....	.....	16% "	.....
"	75479A	"	Harwood Drug Store.	Harwood Drug Store.	"	1	.....	.....	12% "	.....
Bennington County	Total...	.....	.....	.....	.....	13	.....	.....	.....	16

Formaldehyde.....	73535A	May 9	.....	Parke Davis & Co.	Chittenden Co.	1	.....	.....	.....
Butter.....	73825A	" 15	.....	.....	Essex	1	.....	.....	.....
Flour.....	73699A	" 14	.....	M. F. & W. C.	Burlington	1	.....	High in fibre and ash.	.....
Butter.....	74305A	" 28	Combination Cash Store.	Donahue.	"	1	.....	78.5% butter fat.	.....
"	74625A	June..7	.....	Wilson & Co.	"	1	.....	No Saccharin.	.....
Lemon Sour.....	75055A	June 19	H. Rosenthal	T. E. Donahue	"	1	.....	"	.....
Orange Pop.....	75056A	"	"	.....	"	1	.....	"	.....
Strawberry Pop.....	75057A	"	"	.....	"	1	.....	"	.....
Perfection Purty	75058A	"	"	.....	"	1	.....	"	.....
Ginger Ale.....	75059A	"	"	.....	"	1	.....	"	.....
Raspberry Pop.....	75059A	"	"	.....	"	1	.....	"	.....
Root Beer.....	75060A	"	"	.....	"	1	.....	"	.....
Vinegar.....	75635A	July 2	.....	.....	Jericho.	1	.....	Contains Zinc.	.....
Chocolate Ice Cream	75915A	July 10	A. Mady	Kent's Ice Cream Co.	Burlington.	1	.....	14% butter fat.	.....
Vanilla	75914A	"	.....	Churchill's Drug Store.	"	1	.....	18% "	.....
"	75913A	"	.....	Manos Bros.	"	1	.....	18% "	.....
"	75912A	"	.....	Coon's Ice Cream Co.	"	1	.....	14% "	.....
"	75916A	"	Concord Candy Kitchen	Concord Candy Kitchen.	"	1	.....	22% "	.....
Butter.....	75917A	"	Combination Cash Store.	M. F. & W. C. Donahue.	"	1	.....	"	.....
Pineapple.....	76316A	July 20	.....	.....	"	1	.....	"	.....
Chittenden County	.....	.....	.....	.....	Franklin Co.	15	2	1	19
Vanilla Ice Cream.....	76204A	July 18	E. J. Alexander.	E. J. Alexander	St. Albans.	1	.....	17% butter fat.	.....
"	76202A	"	E. L. Jenks.	E. L. Jenks	"	1	.....	17% "	.....
"	76263A	"	Homer McGregg.	Homer McGregg.	"	1	.....	9% "	.....
"	76266A	"	W. H. Colomb.	W. H. Colomb.	"	1	.....	15% "	.....
"	76265A	"	Conte & Co.	Conte & Co.	"	1	.....	13% "	.....
Franklin County..	Total..	.....	.....	.....	.....	3	2	.....	5

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE FROM APRIL 1 TO AUGUST 1, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination					Remarks	Total
					Under "Food and Drug Law"	Submitted Domestic Product					
			Legal	Adul-terated		Mis-branded	Whole-some	Un-whole-some			
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town						
Hill Crest Brand Pure Honey.....	72838A	April 23	W. F. Blood.....	H. B. Phillips..	Orange Co. Randolph.....	1					
Carmelo Brand Pure Olive Oil.....	72840A	"	W. F. Blood.....	Carmelo Co....	"	1					
Orange County....	Total..					2					2
Butter.....	74006A	June 5			Orleans Co. Coventry.....	1					
Orleans County...	Total..					1					1
Maple Sugar.....	73324A	May 2	Collins & Needham...	C. E. Martin...	Rutland Co. Brandon.....	1					
" Syrup.....	73325A	"				1					
" ".....	72985A	April 26	Vt. Marble Co's Store.	C. H. Churchill Proctor.....	Geo. Bullard..	1					
" Sugar.....	72986A	"				1					
" ".....	72510A	" 17	Murdock & Durkee...	I. C. Holden...	Rutland	1					
" ".....	72511A	"	G. E. L. Badlam	M. Ridion.....	"	1					
" Syrup.....	72507A	"	Badlam Store.....	J. G. Kelley...	"	1					
" ".....	72508A	"	H. E. Seward.....	Walter Seward	"	1					
" ".....	72509A	"				1					
Kidder's Wintergreen 1.5% Wintergreen Oil	75596A	June 27	E. H. Sloan.....	E. Hartshorn & Son.....	Danby	1					
Kidder's Peppermint 1.5% Peppermint Oil	75597A	"	"	"	"	1					
Spts. Camphor.....	75598A	"	McIntyre Co.....	"	"	1				75% of required camphor	
Sweet Spts. Nitre.....	75599A	"	"	"	"	1				25% ethyl nitrite.	
" ".....	75600A	"	"	"	"	1				2.7% "	
Tinct. Iodine.....	75623A	"	McShane's Phar.....	"	Poultney.....	1					
Fowler's Solution.....	75624A	"	"	"	"	1					
Ess. Peppermint.....	75625A	"	"	"	"	1					
" Spearmint.....	75622A	"	"	"	"	1					

Ess. Spearmint.....	June 27	Drew's Phar.	Poultney.	1	1	Twice the amount of oil required
Spts. Anise.....	"	"	"	"	"	"
Spts. Camphor.....	"	"	"	"	"	"
Sweet Spts. Nitre.....	"	"	"	"	"	"
Ess. Peppermint.....	"	"	"	"	"	"
Pure Ess. Peppermint.....	"	Foley Groc. Co.	Fair Haven.	1	1	25% Oil Peppermint.
Ess. Anise.....	"	Green Bros.	"	"	"	"
Ess. Peppermint.....	"	"	"	"	"	"
Tinct. Iron Chlor.....	"	"	"	"	"	"
Iodine.....	"	"	"	"	"	"
Dil. Phosphoric Acid.....	"	"	"	"	"	"
Sweet Spts. Nitre.....	"	"	"	"	"	75% of the required iodine.
Camphorated oil.....	"	"	"	"	"	3 times the acid required.
Spts. Camphor.....	"	"	"	"	"	2/10% Ethyl Nitrite.
Ess. Peppermint.....	"	G. E. Adams.	"	1	1	15% of Camphor.
Tinct. Iodine.....	"	"	"	"	"	"
Ess. Peppermint.....	"	"	"	"	"	6% Peppermint Oil.
Tinct. Iodine.....	"	"	"	"	"	"
Iron Chlor.....	"	"	"	"	"	"
Fowler's Sol.....	"	"	"	"	"	"
Sweet Spts. Nitre.....	"	"	"	"	"	3% Ethyl Nitrite.
McEwan Brand Pure Vanilla.....	"	E. C. Owen.	"	1	1	1/10% Ethyl Nitrite.
Pure Ext. Vanilla.....	"	"	"	"	"	"
Pure Ext. Orange.....	"	"	"	"	"	"
Ice Cream.....	July 17	E. J. Preston.	"	1	1	"
"	"	H. H. Howe.	Rutland.	1	1	15% Butter Fat.
"	"	E. Bernard.	"	1	1	14% "
"	"	J. Calvi.	"	1	1	14% "
"	"	O. S. Frost.	"	1	1	18% "
"	"	D. J. Anthony.	"	1	1	8% "
"	"	L. Cereghino.	"	1	1	14% "
Vanilla Ice Cream.....	"	Antonio Calvi.	Fair Haven.	1	1	20% "
"	"	G. E. Adams.	"	"	"	"
"	"	Howe's Ice Cream Co.	"	1	1	18% "
"	"	Coon's Ice Cream Co.	Poultney.	1	1	14% "
"	"	F. Bertolino.	"	1	1	12% "
"	"	"	Rutland.	1	1	14% "
Rutland County.....	Total.			40	14	
Olive Oil.....	May 26	Washington Co	Northfield.	1	1	11% Butter Fat.
Vanilla Ice Cream.....	July 18	Merlo Bros.	Barre.			

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE FROM APRIL 1 TO AUGUST 1, 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination					Remarks	Total
					Under "Food and Drug Law"				Submitted Domestic Product		
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Legal	Adul-terated	Mis-branded	Whole-some		
Vanilla Ice Cream...	76236A	July 18	Fraquelli and Vanetti...	Fraquelli & Vanetti	Barre...	...	1	...	...	12% Butter Fat.	...
"	76242A	"	Barre Creamery...	Barre Creamery	"	...	1	...	...	13% "	...
"	76237A	"	Cummings & Lewis...	Cummings & Lewis	"	...	1	...	...	18% "	...
"	76235A	"	United Fruit Co....	United Fruit Co.	"	...	1	...	...	17% "	...
"	76232A	"	E. M. Laws...	E. M. Laws.	"	...	1	...	...	14% "	...
"	76241A	"	Ward's Candy Kitchen...	Ward's Candy Kitchen	"	...	1	...	...	19% "	...
"	76240A	"	Drown's Drug Store...	Drown's Drug Store	"	...	1	...	...	15% "	...
"	76239A	"	Barre Drug Co....	Coon's Ice Cream Co.	"	...	1	...	...	14% "	...
"	76238A	"	Diversi Fruit Store...	Diversi Fruit Store	"	...	1	...	...	19% "	...
"	76243A	"	Red Cross Phar....	Red Cross Phar.	"	...	1	...	...	16% "	...
Washington Co....	Total..	.....	.....	.....	.....	9	3	.....	.....	.....	12
Maple Syrup.....	72290A	April 10	Shattuck & Hall.	.....	Windham Co. Westminster West.	1	.....	.....	.....	.....	.....
"	72289A	"	Harlan Barnes	.....	Saxtons River..	1	.....	.....	.....	.....	.....
"	72287A	"	J. V. Vanceor.	.....	"	1	.....	.....	.....	.....	.....
Windham County.	Total..	.....	.....	.....	.....	3	.....	.....	.....	.....	3
Maple Syrup.....	72423A	April 14	J. A. Lyman.	.....	Windsor Co.	1	.....	.....	.....	.....	.....
"	72424A	"	D. J. Brookway.	.....	Hartford.	1	.....	.....	.....	.....	.....
"	72937A	April 25	Prison Farm.	.....	"	1	.....	.....	.....	.....	.....
"	72178A	6/A.	D. Dunham.	.....	Windsor.	1	.....	.....	.....	.....	.....

MEDICO-LEGAL CASES.

SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM MAY 1 TO AUGUST 1, 1917.

Lab- oratory Number	Date Rec'd	Town	Material	Examined for	Result
73489A	May	ADDISON COUNTY.	Autopsy.....	Cause of death.....	Case pending.....
73490A	"		Viscera.....	Poison.....	"
73491A	"		Capsules.....	"	"
73492A	"		Bottles.....	"	"
73501A	"		Culture and tissue.....	Evidence.....	"
74718A	June	Vergennes.....	Tissue from cow.....	Cause of death.....	Tuberculosis.....
74488A	June	BENNINGTON COUNTY.	Autopsy.....	Cause of death.....	Case pending.....
74482A	"		Tissue.....	Evidence.....	"
74039A	May	CHITTENDEN COUNTY	Autopsy.....	Cause of death.....	Carbolic acid.....
74040A	"		Stomach contents.....	Poison.....	"
74717A	June		Beer.....	Alcohol content.....	Case pending.....
74995A	June		Autopsy.....	Cause of death.....	Traumatism—struck by automobile
75051A	June	RUTLAND COUNTY	Anzoc.....	Alcohol content.....	None.....
75052A	"		Beer.....	"	Case pending.....
73977A	May	WASHINGTON COUNTY	Autopsy.....	Cause of death.....	Peritonitis.....
74654A	June		"	"	Acute alcoholism.....
74655A	"		Stomach contents.....	Alcohol.....	Present.....
75285A	June		Autopsy.....	Cause of death.....	Apoplexy.....
75286A	"		Stomach contents.....	Alcohol.....	None.....
74673A	June	WINDHAM COUNTY	Viscera.....	Poison.....	Arsenic.....
75053A	June		Embalming fluid.....	Arsenic.....	Present.....
Total 21					

4.09
596
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SEE IMPORTANT NOTICE ON LAST PAGE.

BULLETIN

OF THE

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RUTLAND, VT.

1918

CARRIAGE OF THE VIRUS OF POLIOMYELITIS.

BY EDWARD TAYLOR, M.D., AND HAROLD L. AMOSS, M.D.

(From the Research Laboratory of the Vermont State Board of Health, Burlington.)

The solution of the problem of the mode of infection in poliomyelitis has been attempted in various ways, with results which have led to the conclusion that the microbic cause is conveyed from one individual to another by personal contact. This belief is based upon clinical observation and experiment. Wickman first brought clinical proof, since supported by many independent observations, of the correctness of this generalization; and Flexner and Lewis, and later Kling and Pettersson, provided the experimental demonstration of its adequacy.

However, a considerable number of physicians and others still refuse to accept this explanation. They hold that the mode of infection remains undiscovered, or they account for it through some variety of insect transmission, also undetected. In recognition of the skepticism still prevailing, we have been led to describe in detail the experimental demonstrations of the carriage by healthy persons of the virus of poliomyelitis, to which may now be added our own successful inoculations. Our results include the demonstration, recorded for the first time, that a proved carrier of the virus may come down with acute poliomyelitis. This observation should serve to strengthen the position of those who accept as established the personal communication of the microbic cause, or virus, of the disease.

Poliomyelitis occurred in epidemic form in Washington County, Vermont, in the summer of 1917. From June 1 until September 1, 79 cases were recognized among the population of 45,000.

Carey P., male age 16 years. The patient lived in the village of Waitsfield, 18 miles from Montpelier, where cases of poliomyelitis existed. No case of the disease had been discovered in Waitsfield. On June 2, 1917, he attended a ball game at Northfield where there were no cases, and returning home stopped in Montpelier for supper. Probably in the assembly at Northfield persons from the infected districts were present. Until June 12 there were no symptoms of illness; on that day there was complaint of headache and pain in the back and legs. The patient vomited once. June 13. First seen by a physician who observed that the patient had fever, and treated him for a gastrointestinal upset. June 16. Extensive paralysis involving both legs, right triceps, intercostals, pectorals, and diaphragm. Lumbar puncture yielded clear fluid under pressure, containing 400 white cells per cmm. and excess of globulin. Death occurred on this date.

The family consisted of the father, age 59 years, mother, age 42, sister, Hazel, age 13, two brothers, Everett, age 10, and Dwight, age 7. The two younger brothers slept in the same bed, and in the same room with the elder brother Carey.

June 16. Everett and Hazel were given nasopharyngeal irrigation with distilled water, 60 cc. being obtained from the former and 100 cc. from the latter. 10 per cent of ether was added to each, and the fluids were sent at once to the laboratory. One of us had previously determined that ether inhibits bacterial development without injuring the poliomyelitic virus. The washings were treated separately. The entire concentrate was injected intracerebrally into two monkeys. The time elapsing between the collection and the injection of the washings was less than 6 hours.

We return briefly to the history of the two children. Everett had not been away from the village and was in usual health until June 13, the day after Carey fell ill. He also felt indisposed, showed a temperature of 102° F. and suffered from diarrhea, but did not vomit. However, he recovered quickly and subsequently on minute examination has shown no muscular weakness or abnormality of reflexes.

Hazel had not been away from Waitsfield. She had been entirely well at the time the washings were taken and remained well until June 21, at which time she complained of headache. She showed a temperature of 102° F. On June 22 her reflexes were exaggerated and stiffness of the back was present, but no muscular weakness was detected. Lumbar puncture was unsuccessful. The symptoms subsided gradually, but re-examination made on July 22 revealed partial paralysis of the left deltoid, right anterior tibial, and abdominal muscles. She had, therefore, suffered a mild attack of poliomyelitis.

Experiments leave no doubt that the nasal washings, both from Everett and from Hazel, contained the virus of poliomyelitis. The instance of Hazel is of particular importance since in her case the virus was detected in washings taken 5 days before the first symptoms of what proved subsequently to be a mild attack of poliomyelitis set in. In other words she was carrying the virus in her nasopharynx several days in advance of the appearance of any signs of illness. She constitutes, therefore, an example of a carrier of the virus developing poliomyelitis—the first one in which the demonstration has been proved experimentally.

The interpretation in the case of Everett is not so simple. When the virus was detected in his nasopharynx he had passed through a slight attack of illness, at about the same time with, and of about the same character as that of his brother Carey who died, but unattended by paralysis. The presumption is that Everett suffered from a non-paralytic or abortive attack of poliomyelitis. The detection of the virus in his case proves him not to have been a healthy, but a recovered carrier of the microbic cause of the disease.

The youngest child, Dwight, age 7 years, was refractory and no washings were obtained from him on June 16 when they were taken

from the other children. On June 18 he complained of being unwell. The symptoms were severe headache, stiffness of neck, exaggerated reflexes, but no diarrhea. Lumbar puncture yielded a fluid containing 500 white cells per cmm. and an excess of globulin. Immune poliomyelitic serum from recovered cases of the disease was administered intraspinally, intravenously, and subcutaneously: 24 cc. were given intraspinally, 30 cc. intravenously, and 39 cc. subcutaneously. Recovery was prompt, with a slight paralysis of the right anterior tibial muscle. Nasopharyngeal washings were, however, obtained on September 4, which after filtration and concentration were inoculated into a monkey. The monkey remained well.

DISCUSSION

This series of cases of poliomyelitis in one family, with the circumstances surrounding their origin, forms an instructive illustration of the mode of infection of the disease as brought out by the clinical and experimental study.

In the first place, one child only—the eldest boy, Carey—was exposed in a locality in which poliomyelitis was epidemic. The exposure took place on June 2. Immediately afterwards he returned home, to a village in which no previous case of the disease had occurred, and mingled freely with his younger brothers and sister. The contacts may be considered to have been intimate in that the three male children slept in the same room, two of them in the same bed.

The incubation period in Carey's case was 9 or 10 days, as he was taken ill on June 12. His brother Everett, 6 years younger, developed symptoms 1 day later and passed through what was probably a non-paralytic attack of poliomyelitis. He may be considered as having been infected by Carey some time during the incubation period, and to have exhibited a shorter incubation than his brother. The youngest brother, Dwight, was also freely exposed to both older brothers and exhibited symptoms passing into those indicative of poliomyelitis 5 or 6 days later than his brothers. Finally, Hazel, the sister, in age between the two older brothers and possibly less freely exposed, developed symptoms and muscular weakness last of all and about 10 days after the eldest brother. The incubation periods of the cases, therefore, probably were 10 days or less, and the order of the attacks was such as to indicate successive infection and not a common one.

The second feature worthy of emphasis is the detection in this one family of two carriers of the poliomyelitic virus by the inoculation test. One (Everett) was discovered to be a carrier probably following a non-paralytic attack. In the instance of Hazel there is no doubt, first that she was discovered to be a healthy carrier, and second that she developed typical poliomyelitis during the period of carriage. Incidentally the nasopharyngeal secretions of Hazel and Everett failed to neutralize the poliomyelitic virus.

If the view that the mode of infection in epidemic poliomyelitis is by way of the nasopharyngeal mucous membrane and is brought about or greatly facilitated through the operation of healthy carriers of the virus is accepted, we may well consider whether in the final analysis every case of the disease does not develop from a carrier. At first this may seem startling, and yet it merely means that after contamination of the nasopharynx with the virus, an intervening period exists during which persistence, multiplication, and invasion of the virus take place. In not all contaminated persons does this process become complete; in some the virus may merely persist for a time, in others it may multiply in the nasopharynx (these constitute the healthy carriers of greater or less endurance), while in the exceptional few invasion also occurs. In the last class symptoms arise, and these individuals become cases of poliomyelitis.

THE LESSON OF THE DRAFT

The great world war with its many lessons is gradually reconstructing our ideas of life to such an extent that every phase of existence is subject to enormous changes. Amidst the shifting opinions of the relative value of things, one great paradox is being developed; while men are being sacrificed on the battle fields, as if the supply were inexhaustible, one of the first lessons which is being impressed upon those who remain at home is relative value of human life. Before the actual emergency occurred, there was probably a majority of people in this country who thought that an army of physically fit young men could be raised with very little trouble, but when the draft came and we found that only 50% were accepted as fit for the army, we then began to realize that something must be radically wrong with the young manhood of our country. Then as the men were subjected to one special examination after another, and such a comparatively small number showed the perfection which we had fondly imagined all our young men would attain, we became impressed with the humiliating fact that many of the present generation have been allowed to "just grow up" with little thought of the perfect manhood which is only gained by attention, first of all, to the physical health of the child.

The first selective draft called for a quota of 1049 men from Vermont. In order to supply this number, it was necessary to examine 5658 men and of these 2862 or over 50% were rejected as physically deficient. The largest number of rejections were on account of defective teeth, being 482 or 16.8%. Defects of feet were next, numbering 442 or 15.4%, while 420 or 14.6% were found to be deficient in height, weight or development. Defects of the circulation, mostly trouble with the heart or veins, were found in 358 cases or 12%; eye defects in 322 cases or 11.2%, and hernia

in 285 cases or 10%. Other causes for rejection were: trouble with the nervous system, 4%; chest difficulties, 4.4%; rectal trouble, 1.9%; nose and throat, 1.5%; deafness, 1.9%.

It will thus be seen that over 90% of the rejections were due to causes which could have been prevented by proper care and treatment. This is certainly a sad commentary on the American way of bringing up children. Never before have we had the opportunity to see ourselves as we really are and to realize how we are actually wasting human lives and fostering a generation of defectives who could be brought up to the full standard of manhood by the proper methods of instruction and treatment. The lesson is so obvious that it should not be allowed to go unheeded.

There is one line of work provided by the laws of the state which should be developed to a much larger extent than has hitherto been done. This is medical inspection of school children. The 1916 report of the Commissioner of Education shows that 17 towns had availed themselves of this service, according to the statute, although something had been done in 27 towns, for which varying amounts had been paid, ranging from 75 cents to \$821.05. The total amount spent for medical inspection of schools in the state in 1916 was \$3,348.87, an average of \$13.60 for all towns in the state. In some of the towns where this is in vogue, the inspection and follow-up work are being done conscientiously and with good results. In others, it is a mere perfunctory thing which apparently interests no one, and is, therefore, without effect except to bring the system into ill-repute.

There is certainly a great opportunity for good in this work among school children. Here is the fountain-head. Here defects may be discovered and the remedy applied in time to save the child from a life of misfortune and dependence. Here the educational benefits may be applied with their fullest results. Here the future generations may be reached and started in a way of living which will save the nation from a repetition of the embarrassing situation which the present draft has shown to exist. It is a work for those who are interested in the up-building of the race, and is, I believe, the only logical starting point.

There is, however, one more point of attack which might well be developed and that is the education of girls and young women who are to be the future mothers. Not enough is done along the line which might be called prenatal education, and too many young people who become parents are in dense ignorance of even the elementary principles of the duties and privileges of their station. Child welfare leagues and similar organizations should be fostered for the accomplishment of this object.

At least a part of the lesson of the draft army is squarely up to the medical profession and it is encouraging to note that the subject is being considered in medical societies throughout the country. The greater

lesson is for the public generally and it should be the duty and desire of every citizen to try to find out what part he should take in public and private life to make conditions better. Patriotic duty does not consist entirely in wearing the uniform of the army or navy. Every man, woman and child should be, in some degree, a public health worker, at least to the extent of seeing to it that the home city or town embraces the opportunities which are open to all. This must be an individual service in which the ones who know the conditions must be the first to lend their aid toward the accomplishment of better things. The great need has been shown and every good citizen must respond to the stimulus which this call to duty affords.

SAVE THE BABIES

The lives of one hundred thousand of the Nation's children are to be saved in a child welfare drive which the Federal Children's Bureau has announced. The drive will begin on April 6, one year from the day the United States declared war, and the first day of the Children's year.

Public health authorities agree that one-half the deaths of young children are easily preventable. Each state will be assigned a definite quota of the hundred thousand lives to save. State councils of defense and the State women's committees are being called upon to be responsible for the state quotas.

Methods of work will be those which have already proven efficient in saving children's lives in the United States and other warring countries.

Briefly, the methods are as follows:

First. The registration of births so that there may be an immediate record of every child born; and nursing and medical skill may be provided wherever family income does not permit its being secured independently.

Second. For every mother prenatal care, necessary care, of doctor and public nurse at confinement, and after care.

Third. Children's conferences where well babies can be taken periodically to be weighed and examined, and clinics where sick children may be given medical advice.

Fourth. The organization of state and city divisions or bureaus of child hygiene.

Fifth. The guarding of the milk supply, that every child may have its quota of clean, pure, milk.

It is known that the examinations of the draft have resulted in a considerable number of rejections for physical defects which might have been remedied in infancy or early childhood if then recognized. Weight and height constitute on the whole a fair standard of development; how do the young children of the United States measure up to such a standard?

As a test of child welfare, to inaugurate the Children's Year which begins on April 6, a nation-wide weighing and measuring of babies and children of pre-school age is proposed. No general test of children of pre-school age has ever been made, and an examination of such children with special reference to weight and height is now proposed as the primary feature of the war time Children's Year.

The Children's Bureau will provide a record card which will be arranged in duplicate so that one-half can be sent in to the Children's Bureau and one-half kept by the parents. The record will be filled out by trained physicians and nurses in many places, but if parents cannot take their children to an examining station, they can secure cards and make the records themselves. The record card will show the fair standard for children of a given age and parents can judge for themselves where their children stand. Should there be any great divergence from this standard, it is a warning that the children's health should be given medical consideration or should be carefully looked after. The records will all be gathered and tabulated by the Bureau. The weighing and measuring experiment can be conducted with little or no expense.

Weighing and measuring should begin as soon as possible after the 6th of April, and should be concluded within sixty days. It has been suggested that where Baby Week celebrations of any sort are to be held, the last six days of this period, being the first six days of June, should be taken for Baby Week. Such celebrations as are held, will, it is hoped, especially emphasize the need of public health nurses and of special protection for young infants against various dangers of summer heat.

In Vermont, between 7,000 and 8,000 babies are born every year and our records show that about one out of every ten or one hundred out of every thousand die before they become one year old. Of those left, another 30 or 40 out of every thousand die before the fifth year. Why do these babies die? About one-third of the children who die in early infancy are prematurely born; another third die of bowel troubles, usually as a result of improper feeding. The remainder are taken off very largely by communicable diseases. In order to save the lives of these babies, it is necessary that a wide-spread campaign of education be conducted among those who are responsible for their welfare and this means largely among the young mothers and girls who are to be the mothers of

the next generation. To bring Vermont up to its quota in the Baby Saving Campaign this year, there must be co-operation of all societies and organizations who are in any way interested in this subject.

The State Board of Health will be ready as usual to co-operate in this great work and will furnish speakers for Baby Saving Campaign meetings whenever desired.

PROTECTING THE MILK SUPPLY

We are entering upon a vital period in the life of the Nation—a period in which the status of each person in relation to his country will be decided. The professional man, the scientist, the farmer, and the soldier, each will have his duties to perform. The preservation of health is all important. Disease must be controlled, and the purity of the food supply safeguarded. Milk is one of our most important foods.

Health officers can do a great deal to help the food situation by not only looking after the sanitary side of the milk question, but by getting the consumers interested in the value of milk and its products as food, and by encouraging the producer and handler to check the waste of milk. Consumers may be interested by information regarding the value of milk and its products as food and by the relative cheapness of those articles when compared with other foods.

Officials are also urged against the destruction of food which may be valuable not only to man but to domestic animals, after it has been denatured or otherwise rendered safe. The custom, common in many cities, of officials dumping into the sewer any milk that does not come up to local requirements, should be discouraged, since the simple, inexpensive process of denaturing converts it into a valuable food for animals. The addition of a 3 per cent solution made from rennet, strength 1 to 30,000, in the proportion of 2½ ounces to 10 gallons of milk, at a temperature of 53° F. or higher, will curdle the product within an hour. This will render the milk unfit for human consumption and still allow it to be fed to calves, pigs or chickens.

NEED OF PROMPT COOLING

The primary motive of the health officer is to provide the consumer with safe milk of low bacterial count; the principal object of the dairyman is to furnish the consumer with good, clean milk. In each case cold is the principal factor.

Notwithstanding this fact, dairy farmers have not made the best use of facilities already provided or easily obtained for cooling the milk, and dairy inspectors have not always shown the dairymen the best

methods of cooling to obtain maximum efficiency with minimum expense.

A surprisingly great loss from spoiled food products will be prevented by taking advantage of means which already exist or can be provided with so little expense that the saving in fresh milk more than counterbalances the outlay for cooling.

In those parts of the country where natural ice is plentiful, the dairy farmer should:

1. See that his ice house is properly constructed to hold all the ice needed, as well as to save the greatest percentage of that stored.
2. Build cooling tanks, properly situated, insulated and covered so that loss by radiation is reduced, and large enough to hold the full milk cans but not so large as to give too great a volume of water to cool.
3. Use cool, running water in order to save ice by reducing the temperature of the milk to approximately that of the running water before adding the ice.

In an educational milk campaign, carried on in the New England States during the summer of 1916, the Dairy Division found more than 100 dairies where, by a little more attention to details with equipment already possessed the average dairyman could deliver milk to the railroad station at an average temperature of 54° F., a reduction from 63° F., and with an enormous decrease in bacteria.

In the sections of the country where the cost renders the use of large quantities of ice for proper cooling impracticable, the dairyman is advised to take full advantage of spring or flowing well water. Rapid cooling is especially necessary when the time for delivery to the railroad station is less than an hour after milking. In such instances a mechanical system of cooling should be used. In other instances the tank of running water, followed if possible by the use of ice, is recommended. Such mechanical systems as brine coils and direct expansion should be provided in the larger dairies.

Health officers are urged to pay particular attention to the cooling question and to assist the dairymen in a practical way. Detailed information may be obtained by writing to the United States Department of Agriculture for Farmers' Bulletin 623, entitled "Ice Houses and the Use of Ice on the Dairy Farm."

WASHING THE CANS

One of the greatest single factors in causing bacterial inoculation of milk will be eliminated when all milk utensils are properly washed and sterilized. Not only is this necessary on the farm but the milk dealer also should take more care to see that the cans returned are clean and sterile.

Lack of proper cleaning of milk utensils means that more or less organic matter is left in them. This organic matter undergoes bacterial decomposition, causing a peculiar, musty, or even foul odor, and at the same time allows large numbers of bacteria to develop which contaminate the milk when it is put into the utensils. Experiments have demonstrated that milk pails, supposed to be properly washed, have harbored millions of bacteria, and that billions of bacteria have been taken from supposedly clean milk cans. In order to remedy these conditions, it is necessary not only to wash utensils properly but to sterilize them by steam.

For properly cleaning and sterilizing utensils on the farm, the producer must have a convenient and abundant supply of pure water, easy facilities for obtaining hot water, and some form of steam sterilizer.

The dairy within city limits should use city water and have it piped so that it will be most convenient. On the farm, the ideal system is a central reservoir from which the water is piped to house, barn, milk room, and wash room. Wells or cisterns situated near the wash room may also solve the problem. A good, flowing spring of pure water is so important as to warrant the building of the milk house near it, though care must be taken to avoid any danger of surface contamination.

For washing utensils, the dairyman should provide a tank large enough to hold a 10-gallon can. An abundance of hot water also is necessary, and may be obtained by running a pipe from the steam boiler to the wash tank and heating the water by means of live steam. If the dairyman does not possess a boiler some simple means of obtaining hot water should be devised. Direct heating of sufficient water over a furnace, wood or oil stove is too slow. A form of heater used in some parts of the country consists of a small brick furnace upon the top of which a barrel is set. A three-quarter inch pipe passes from the lower side of the barrel into the fire box, where it is arranged in a coil so as to expose a large surface to the flame. It then passes through the fire-box wall into the upper half of the opposite side of the barrel, which is kept filled with water slightly above the upper outlet. A constant current of hot water flows through the pipe and very quickly heats all the water in the barrel.

In washing, utensils should first be rinsed with warm water, and then scrubbed with hot water, washing powder, and brush, after which they should be rinsed with hot water. Utensils should then be sterilized by means of some form of steam sterilizer. The large, well-equipped dairy will have the steam boiler and sterilizer, but the small producer may not be able to afford them. To meet the demand for some form of simple, cheap but efficient steam sterilizer, the Dairy Division has devised an outfit which is fully described in *Farmers' Bulletin 748*, entitled "A

Simple Steam Sterilizer for Farm Dairy Utensils.''' This sterilizer can be made by the average tinner and should cost, complete, not more than \$15.

As soon as sterilized, milk utensils, separator parts, and straining cloths should be carefully protected against recontamination. Covers should be put on milk cans, and they should not be opened until they are to be filled.

THE INCREASED MENACE OF LOBAR PNEUMONIA

Lobar pneumonia today causes more deaths than any of the other acute infectious diseases. This is clearly shown in a report recently prepared by the Metropolitan Life Insurance Company on its mortality experience covering the last six years. During this period there occurred nearly 38,000 deaths from lobar pneumonia among the Industrial policy-holders of this Company.

The death rate from lobar pneumonia is not showing improvement from year to year as is the case with most of the other infectious diseases. The year 1916 was an especially bad one for this disease, the rate having increased very perceptibly over the preceding four years. The very severe grippe epidemic which prevailed in 1916 may have had some bearing upon this result.

Although prevalent at the early ages, lobar pneumonia is not essentially a disease of early childhood. When it does occur in young children it is very frequently fatal. The disease reaps its greatest harvest at the ages over 65. At these ages it is one of the chief causes of death. The insurance figures furthermore, show that the colored people have a much higher mortality rate than is found for the whites. This is true for both sexes and for every period of age. Pneumonia has a higher death rate for the male sex than for the female.

In view of these facts it is clear that a vigorous public health campaign must be directed by communities against the ravages of lobar pneumonia. The Vermont State Board of Health has already taken a forward step in declaring lobar pneumonia a reportable disease, like measles or scarlet fever. This is a new idea for most people. There are, undoubtedly, millions of persons in the country who would not go into a house where there was measles, scarlet fever, whooping-cough or diphtheria, but who would not hesitate to go into a sick room where there was a case of acute lobar pneumonia. Nevertheless, the best medical authorities have shown that this disease is extremely infectious, and that those who are stricken with it have a worse chance of recovering than if they had any of the infectious diseases mentioned.

Communities can also help by checking the nasty habit of spitting in public places, which is probably the most fruitful method of spreading the germ of pneumonia.

The form of pneumonia known as bronchopneumonia is also a serious factor in the death rate, especially of young children; but must not be confused with the infectious disease which health departments are now taking steps to quarantine.

LIBERTY BOND ARGUMENTS

How might your \$50 be applied by the Government for War Service?

It would protect 1,000 soldiers from death by small pox.

It would render 666 soldiers relatively safe from typhoid.

It would assure the safety of 139 wounded soldiers from the dread and deathly lock-jaw whose germs swarm in the Flander's soil.

It will render painless 400 operations.

It will supply a bandage long enough to go from the Capitol to the White House and back again (nearly 2 miles) or it will bandage 555 hands.

To dress those trench wounds which can be cared for with "First Aid Packets", your bond would take care of 160 injuries.

In adhesive plaster your bond would run 7 strips to the top of the Washington Monument with material enough for a bow on top.

Your bond would lay surgical gauze over a base-ball diamond about $1\frac{1}{2}$ times.

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The BULLETIN is published quarterly by the State Board of Health under the authority of Section 5 of Act No. 90, Legislature of 1900. It will be sent to all Boards of Health. A copy will be sent to any person in the State upon request addressed to the Secretary, Charles F. Dalton, M. D., Burlington.

HEALTH OFFICERS' SCHOOL, MAY 21-23.

A School of Instruction for Health Officers will be held this year at Burlington, beginning on the evening of Tuesday, May 21, and continuing through the morning of Thursday, May 23. The program will include addresses on the elementary principles of the work of a health officer in Vermont and will be entirely devoted to instructions. The large number of new health officers who have assumed office during the past two years will, therefore, find at the school the answer to many of the problems which have come before them. The older health officers will, likewise, learn about recent methods of administration and be brought up to date on the laws and regulations.

Every health officer is expected to attend this school unless he is previously excused by the State Board of Health. Owing to the necessity of instruction at this time, excuses will be granted only on account of most urgent circumstances. Each health officer will receive an allowance of \$4.00 per day and will be paid for his actual expenses while in attendance at the school programs and announcements will be sent out later.

BUTTER SUBSTITUTES

AN ANALYSIS OF 27 SAMPLES OF OLEOMARGARINE

The increasing use of butter substitutes and the request of the Federal food authorities that other fats than butter be used for cooking purposes, made it seem worth while to analyze some of these, principally with the idea of ascertaining the fat content, that is, the food value.

Oleomargarine was the butter substitute selected for investigation and twenty-four different brands found in Burlington with three others from St. Albans were analyzed in December, 1917, and January, 1918. Six of the twenty-seven brands, the so-called "nut-margarines" were made entirely or largely of vegetable fats, as the packages stated and as the analytical figures indicate. One brand, tasted old and rancid, the others possessing the usual taste of oleomargarine, which naturally varied somewhat, depending on composition and mode of manufacture.

The old prejudice against oleomargarine is fast passing, partly, no doubt, due to the increasing cost of all fats and the economic necessity of using the cheapest consistent with palatability, as well as the fact that oleomargarine has reached such a stage in its manufacture that it is now quite palatable and it is more widely known that it is made in a cleanly way from clean products under federal inspection.

Taste and cost can control one's choice as to what fats will be used on the table or in the kitchen, since all fats and oils, whether of vegetable or animal origin, are about equal in respect to the amount of nourishment and energy they supply the body. Denmark, a distinctly dairy country, consumes over forty pounds of oleomargarine per capita; Norway, over thirty; Holland, which exports a large amount of butter, twenty; England, over eight, and the United States has been consuming less than two.

The table giving the various analytical determinations will not be published since the composition of oleomargarine changes from time to time due to climatic conditions, the supply and market value of the various fats and oils that go into its manufacture and various other factors, and such a table would tend to be misleading if one considered it too absolute as might be the tendency. If the analysis of any particular brand is desired, the laboratory is always at the disposal of the state for free analysis of any food which may be submitted, preferably in the original package, or at least accompanied by the original wrapper and label.

There is no standard for oleomargarine but the requirements for butter are that it contain not less than 82½% of butter fat and not more than 16% of moisture. The average cost of the 27 samples was 33 cents; highest, 38; lowest, 25.

Average weight 27 samples: 16.1 oz., highest 17, lowest 15.5.

Average moisture content 27 samples: 10.1%, highest 19.8, lowest 5.9.

Average fat content 27 samples: 82.2%, highest 90.4, lowest 77.7.

The following brands were analyzed: Armour's Silver Churn, Golden Wedding, Armour's Glendale, Armour's 3X, Nut-ola and East Lake,

manufactured by Armour Co., Chicago. Nut-made, Pine Tree, Mayfield, and Daisy Maid, manufactured by Providence Churning Co., Providence, R. I. Swift's Premium, Arrows and Lilly Brand, manufactured by Swift & Co., Cambridge, Mass. Majestic, Certified and Nut margarine, manufactured by Wilson & Co., Chicago. Queen, Sunflower and Nardacol Special, manufactured by Narragansett Dairy Co. Hammond's Lilly White and Ko-Ko brand Nut margarine, manufactured by G. T. Hammond Co. Sunflower and Dol-ko nut, manufactured by Jacob Dold Pkg. Co. Yellow Clover, manufactured by Vermont Supply Co., Boston. Nut-grove, manufactured by Nut-grove Butter Co, Providence, R. I. Wm. J. Moxley's Special, manufactured by Wm. J. Moxley Co. also a product with no specified brand manufactured by Holland Butterine Co., Jersey City, N. J.

REPORT OF THE LABORATORY OF HYGIENE.

The figures below represent the analytical work performed in the Laboratory of Hygiene during the months of November, December, 1917 and January, 1918.

Cultures from the throat examined for diphtheria bacilli.

	Nov.	Dec.	Jan.
Positive	57	42	62
Negative	463	208	189
Total	520	250	251

Specimens of blood examined for the Widal reaction.

	Nov.	Dec.	Jan.
Positive	4	7	21
Negative	45	32	30
Total	49	39	51

	Nov.	Dec.	Jan.
Positive	10	9	16
Negative	57	42	53
Suspicious	5	4	5
Total	72	55	74

Specimens of blood examined for malarial parasites.

	Nov.	Dec.	Jan.
Positive		0	
Negative		2	
Total		2	

Specimens of sputum examined for tubercle bacilli.

	Nov.	Dec.	Jan.
Positive	25	18	37
Negative	95	100	109
Total	120	118	146

Specimens of blood examined for the Wassermann reaction.

Specimens of pus examined for gonococci.

	Nov.	Dec.	Jan.
Positive	14	15	14
Negative	21	24	20
Total	35	39	34

Specimens of sputum examined to determine type of pneumococcus infection.

	Nov.	Dec.	Jan.
Type II	1	0	1
Type III	0	1	2
Type IV	4	4	4
Unsatisfactory	0	0	4
Total	5	5	11

Specimens of water examined for potability.

	Nov.	Dec.	Jan.
Normal	26	38	25
Present pollution	16	7	8
Past pollution	12	11	7
Total	54	56	40

Specimens of milk examined for compliance with legal standards.

	Nov.	Dec.	Jan.
Above standard	24	14	4
Below standard	27	26	20
Total	51	40	24

Specimens of food products (detail table following) examined for compliance with legal standards.

	Nov.	Dec.	Jan.
Legal	16	35	9
Adulterated	8	2	4
Total	24	37	13

Specimens of drug products examined for compliance with legal standards.

	Nov.	Dec.	Jan.
Legal	16	10	1
Adulterated	8	2	0
Total	24	12	1

Specimens of blood examined for white diarrhoea of fowls.

	Nov.	Dec.	Jan.
Positive	0	0	39
Negative	0	0	50
Suspicious	0	0	2
Total	0	0	91

Examinations made for the Department of Justice.

	Nov.	Dec.	Jan.
Autopsies (Medico-legal)	1	0	0
Miscellaneous examinations	14	4	0
Total	15	4	0

Autopsies to complete death returns where no foul play was suspected.

	Nov.	Dec.	Jan.
Autopsies	7	2	3
Miscellaneous examinations.			

	Nov.	Dec.	Jan.
Positive	63	47	37
Negative	78	95	95
Unclassified	0	0	6
Total	141	142	138
Grand Total	1117	801	877

RESULTS OF EXAMINATION OF SAMPLES OF MILK—

No. 118 ACTS OF 1908.

NOVEMBER and DECEMBER, 1917 and JANUARY, 1918.

BURLINGTON

Standard or Above

Ritchie (2)	M. & A. Calen (2)	Brooks
St. John	F. Saltus	MacMurphy
Larochelle	J. O'Brien	Newton (3)
F. L. Murray (2)	Suckstoffs	Spear St. Dairy
A. W. Parizo		(Stewart)

Below Standard—Not Absolutely Clean

Wm. McGrath (2)	Steele & Butler	A. Francois
Leary Estate	B. I. Newton	Bostwick Bros.
M. Glaston	(Chittenden farm)	O. E. Barber
Geo. Allen	MacMurphy	Geo. Saiger
Larochelle	E. S. Brooks	L. E. Genereaux
F. Saltus	St. John	Univ. M. & G. Co.
Suckstoffs	J. O'Brien	

Below Standard—Dirty

J. Rosenberg	Bostwick Bros.	T. P. Welch (2)
Genereaux	Leary Estate	G. C. Allen

SHELDON SPRINGS

*Below Standard—Not Absolutely Clean*Mrs. Ladue
ST. ALBANS*Standard or Above*J. G. Smith Estate
(Point farm)*Below Standard—Not Absolutely Clean*

A. H. Wilcox	E. H. Brooks	John Finn
E. J. Gaboury	John Button	J. H. Smith Estate
F. C. Brown	G. A. Sweeney	(Hill Farm)
F. Bombard	Frank Perry	

*Below Standard—Dirty*Ernest Warner
SWANTON*Below Standard—Not Absolutely Clean*

Robert Hawley	Sam Perry	Campbell
---------------	-----------	----------

FAIR HAVEN

Below Standard—Not Absolutely Clean

Henry Bunker

F. A. Norton

Standard or Above

PROCTOR

W. J. Norris

Bert Hier

W. Sharp

W. H. Mead

SUBMITTED SAMPLES OF MILK FOR NOVEMBER AND DECEMBER, 1917, AND
JANUARY 1918.

Standard or above	19
Below standard—not absolutely clean	18
Dirty	2
Poor quality chemically	6
Poor quality chemically and physically	3
	48

MILK STANDARD—I. Milk is fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half per cent ($8\frac{1}{2}\%$) of solids not fat, and not less than three and one-quarter per cent ($3\frac{1}{4}\%$) of milk fat.

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination				Remarks	Total		
					Under "Food and Drug Law"							
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Legal	Adul- terated	Mis- branded			Whole- some	Unwhol- esome
Fresh Pork.....	81237A	Nov. 23*			Addison Co.							
Fresh Pork.....	81472A	Nov. 29			Bristol.....				1			
Fresh Pork.....	81415A	Nov. 30			Bristol.....					1		
Fresh Pork.....	81615A	Dec. 4			New Haven.....				1			
Beef.....	81877A	Dec. 12			Starksboro.....				1			
Fresh Pork.....	82120	Dec. 20			Middlebury.....				1			
Addison County....	Total.....				Bristol.....				5	1	6	
Fresh Pork.....	82219A	Dec. 22			Bennington County				1			
Bennington Co.....	Total.....				Arlington.....				1		1	
Granulated sugar....	80439A	Nov. 3			ChittendenCo.							
Whole Powdered egg...	81255A	Nov. 20			Burlington.....		1				Contains pieces of vitreous material	
Butter.....	80929A	Nov. 16			Haig & Co., Inc.....							
Butter.....	80925A	Nov. 16			So. Hero Creamery.....							
Butter.....	80930A	Nov. 16			Donahue of Monkton.....							
Butter.....	80926A	Nov. 16			Mad River Farms.....							
Canned Tomatoes.....	81256A	Nov. 23			Donahue of Starksboro.....		1				Low butter fat (77.5%)	
Canned Tomatoes.....	80932A	Nov. 16			Burlington.....					1		
Canned Tomatoes.....	80928A	Nov. 16			Winters & Prophet Canning Co.....							
Canned Tomatoes.....	80931A	Nov. 16			Union Pac. TeaCoJas. Wallace P'k'g Co.....							
Dehydrated Pow- dered egg.....	80927A	Nov. 16			Comb. Cash Store Austin Nichols & Co.....							
Ext. Witch Hazel.....	81409A	Nov. 26			Direct Import. Co.....				1			
Ext. Witch Hazel.....	81414A	Nov. 26			Green Bros.....				1			
					F.W. Woolworth Co.....				1			
					Burlington.....							

*Blank spaces indicate submitted samples.

[illegible]

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING NOVEMBER AND DECEMBER 1917.

Material	Laboratory Number	Date of Receipt	Source of Sample			Result of Examination				Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Legal	Adul- terated	Mis- branded	Whole- some	Unwhole- some	
Sweet Spts. Nitre...	77257A	Aug. 11	C. P. Jones		Lamoille Co.		1				
Lamoille County...	Total...				Johnson...		1			3.2% ethyl nitrite...	1
Fresh Beef...	81587A	Dec. 3			Orleans Co.				1		
Fresh Beef...	81780A	Dec. 9			E. Charleston				1		
Fresh Beef...	82371A	Dec. 31			Troy...				1		
Orleans County...	Total...								3		3
Vanilla Ice Cream...	81244A	Nov. 23	Abraham Drug Store	Coon Ice Cream Co...	Rutland Co.	1					
Vanilla Ice Cream...	81245A	Nov. 23	Rut. Fruit Mkt...	E. Bernard.	Rutland.		1			12% butter fat.	
Vanilla Ice Cream...	81243A	Nov. 23	J. Calvi...	J. Calvi.	Rutland.		1				
Vanilla Ice Cream...	81246A	Nov. 23	O. S. Frost	O. S. Frost	Rutland.		1				
Vanilla Ice Cream...	81242A	Nov. 23	H. H. Howe	H. H. Howe.	Rutland.		1				
Vanilla Ice Cream...	81241A	Nov. 23	D. J. Anthony.	D. J. Anthony.	Rutland.		1			12% butter fat.	
Vanilla Ice Cream...	81240A	Nov. 23	L. Cereghino.	L. Cereghino.	Rutland.		1			11% butter fat.	
Butter...	81540A	Nov. 23			Rutland.						
Rutland County...	Total...					5	3				8
Fresh Pork...	82049A	Dec. 18			Washington Co				1		
Washington County	Total...				Waterbury...				1		1

Raisins (Nonpareil Brand).....	81380A	Nov. 27		J. B. Inderrieden.....	Windsor Co. Ludlow	.....	1	.....	.....	.....	Excessive sand.....
Windsor County.....	Total.....						1				1
Grand Total.....						46	18	10	2		76

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING JANUARY 1918.

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler		Under "Food and Submitted Domestic Drug Law"						
						Legal	Adul-terated	Mis-branded	Whole-some	Unwhole-some		
Beef liver.....	82510A	Jan. 7			Addison Co.						1	
Addison County	Total				Bristol.....						1	1
Oat Flakes.	82935A	Jan. 14			Caledonia Co.				1			
Caledonia County	Total				E. Peacham..				1		1	1
Ice Cream.....	82503A	Jan. 7			Chittenden Co.		1					
Sugar cane syrup...	82514A	Jan. 7	Combination		Burlington..	1						9% butter fat.
Flour and pork.....	83194A	Jan. 23	Cash Store..		Burlington..				1			
Flour, Bread and Doughnuts.....	83355A	Jan. 30			Richmond...				1			
Chittenden County	Total					1	1		2			4
Vanilla Ice Cream..	83002A	Jan. 17			Franklin Co.							
Ice Cream.....	83003A	Jan. 17			St. Albans..		1					12½ % butter fat.
Ice Cream.....	83004A	Jan. 17			St. Albans..	1						4% butter fat.
Franklin County	Total					1	2					3

	Jan. 2	Jan. 8	Grand Isle Co. So. Hero.	1	1	3
Flour.....	82394A	Flour.....	So. Hero.	1		
Flour.....	82395A	Flour.....	So. Hero.	1		
Candy.....	82410A	Candy.....	Grand Isle.	1		
Grand Isle County.....	Total.....			3		3
Candy.....	82321A	Jan. 24	Orleans Co. Orleans.	1		
Orleans County.....	Total.....			1		1
Vaseline.....	82494A	Jan. 6	Windsor Co. Chester Dept	1		
Windsor County.....	Total.....			1		1
Grand Total.....				3	3	14

MEDICO-LEGAL CASES.

SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM NOVEMBER 1, 1917 TO FEBRUARY 1, 1918.

Lab- oratory Number	Date Rec'd	Town	Material	Examined for	Result
		BENNINGTON COUNTY.			
78980A	Oct. 3	So. Shaftsbury	Body of male infant	Evidence	Pending
78981A	Oct. 3	So. Shaftsbury	Body of female infant	Evidence	Pending
78982A	Oct. 3	So. Shaftsbury	Newspaper scraps	Evidence	Pending
		CALEDONIA COUNTY.			
77114A	Aug. 10	St. Johnsbury	Clothing	Evidence	Pending
		CHITTENDEN COUNTY.			
80712A	Nov. 10	Colchester	Autopsy	Cause of Death	Shoe blacking (fluid)
80713A	Nov. 10	Colchester	Viscera	Poison	Negative
82005A	Dec. 17	Burlington	Candy	Poison	Negative
		FRANKLIN COUNTY.			
77143A	Aug. 13	St. Albans	Clothing	Evidence	Negative
79783A	Oct. 19	Enosburg Falls	Bullet	Evidence	Pending
80531A	Nov. 7	St. Albans	Foreign material in baked beans	Identity	Pending
80532A	Nov. 7	St. Albans	Foreign material in tea	Identity	Pending
80533A	Nov. 7	St. Albans	Foreign material in biscuits	Identity	Pending
80534A	Nov. 7	St. Albans	Coating of mirror	Identity	Pending
80721A	Nov. 10	St. Albans	Alloy	Composition	Pending
80722A	Nov. 10	St. Albans	Can of onions	Poison metals	Pending
80723A	Nov. 10	St. Albans	Can of onions	Poison metals	Pending
		GRAND ISLE COUNTY.			
82045A	Dec. 18	So. Hero	Flour	Poison	Pending
82046A	Dec. 18	So. Hero	Flour	Poison	Negative
82047A	Dec. 18	So. Hero	Flour	Poison	Negative
Total 19					

Important Notice

On account of the great advance in the cost of paper and all other materials that go toward the publishing of this bulletin, we find it necessary to cut down our mailing list.

It is not our desire to cut from our list the name of any person who is actively interested in the bulletin and who still wishes to receive it regularly. We are of the opinion, however, that many are receiving the bulletin who have not the time or inclination to make proper use of it, necessitating an unnecessary expense in the printing and mailing. We, therefore, ask you to fill out the blank below and mail to this office at once, if you have not already done so. If you do not comply with this request, it will signify that you are not interested in the bulletin and your name will be taken from our mailing list.

Tear off and mail to Secretary, State Board of Health, Burlington, Vt.

State Board of Health, Burlington, Vermont.

I am interested in the bulletin of the Vermont State Board of Health and desire that my name be kept on your mailing list, in order that I may receive the publication regularly.

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SEE IMPORTANT NOTICE ON LAST PAGE.

BULLETIN
OF THE
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RUTLAND, VT.
1918

ADDRESS AT OPENING OF HEALTH OFFICERS' SCHOOL.

MAY 21, 1918.

BY CHARLES S. CAVERLY, M. D., SC. D., PRESIDENT OF
STATE BOARD OF HEALTH.

This, the Nineteenth School for Health Officers held in Vermont, meets at a critical time of our National life; it is a time when all our thoughts and energies belong to our country. This session's program has been arranged with this fact in mind. Our local sanitary work must be adjusted to war conditions.

Our membership, subject to rather infrequent changes, year after year, has undergone many changes since our last school in 1916. Hence it has seemed best that our program this year should deal largely with fundamentals.

As a whole, then, the program might be described as the fundamentals of local sanitation in war times.

For the first time in these nineteen years, we shall miss the genial and inspiring presence of Dr. Holton. You, who have regularly attended these schools in the past, appreciate what this means. Many years our Secretary, always a tower of strength in all our public health work, he became the Nestor of our gatherings. He knew each of you personally; he knew the peculiar health problems of each of your towns; and when called on for help or advice, he never failed you. I believe the Health Officers of the state had better facilities of knowing Dr. Holton than any other class of citizens, and I feel sure he had the respect, if not the affection, of all.

There should be forty-six new faces here, replacing forty-five old ones, and one from a newly organized town.

During the past two years thirteen Health Officers have died, viz., Mr. L. C. Seeger, Addison; Dr. C. W. Howard, Shoreham; Mr. J. W. Rice, Searsburg; Dr. A. J. Mackay, Peacham; Mr. John O'Brien, Bolton; Dr. W. H. H. Varney, Charlotte; Mr. James M. Gilkey, Brunswick; Dr. H. N. Waite, Johnson; Dr. C. W. Dustan, Craftsbury; Dr. O. J. Ellis, Royalton; Dr. A. L. Bingham, Williston; Dr. S. H. Phelps, Fairfax, Mr. Wm. Hamilton, Sandgate. Many of these men had served their towns for many years—all had done good service. Dr. W. H. H. Varney of Charlotte, Dr. C. W. Dustan of Craftsbury and Dr. A. L. Bingham of Williston had been in service from the first, i. e., for twenty-five years.

Some of the most progressive health officers of the state have entered the Medical Reserve Corps of the Army or Navy. This list—our Honor Roll is as follows:—

Dr. L. B. Rowe, Orwell.
Dr. N. R. Caldwell, Groton.
Dr. R. D. Worden, Montgomery.
Dr. W. O. Hutchinson, Washington.
Dr. F. N. Aldrich, Derby.
Dr. P. E. Buck, Glover.
Dr. F. H. Gebhardt, Rutland City (Navy).
Dr. B. D. Colby, Sudbury.
Dr. F. L. Gilbert, Grafton.
Mr. L. O. Slade, Winhall.

Twenty-three other changes in our personnel have resulted from resignations or removals from town and failure of re-appointment.

The first Health Officers' School was held here in Burlington in July 1899. Some of you gentlemen were present; four of your names were on the program of that meeting, Mr. Smith of Manchester, Dr. Bryant of Ludlow, Dr. Bailey of Randolph and Dr. Pelton of Richford. Possibly after all these years the veterans of that day may think they have attended long enough to graduate. Many of us certainly would have graduated long ago, if the science of Sanitation, Public Health, had been at a stand still. Changes, however, are constantly occurring, and these changes are in the nature of progress.

There is no department of human endeavor, in which the world has seen more progress during the last twenty years than in Preventive Medicine. Organized, scientific, public health work is scarcely older than this school.

In 1899, we had just committed our state to a venture into a then little known field; a Laboratory of Hygiene was thought by some to be an extravagance. Dr. Linsley was a man of enthusiasm and ideals. He, as you know, was the chief factor in securing this Laboratory, one of the very first in the country and he also was the main factor in starting it on its successful course. The Laboratory and this School are twin institutions. The school was started as a real school. We were all pupils in this school. We learned here to utilize, for the benefit of all our people, the then comparatively new science of bacteriology.

We are proud of the record this laboratory is making for itself. Its usefulness has grown steadily and its findings are authoritative. There were many people in Vermont, nineteen years ago, some, indeed practicing physicians, who did not believe that diphtheria could be caused or diagnosed by the presence of a germ; or even consumption or typhoid fever; or

that infection lurked in milk or water. Those were the days when infectious disease was traced to the cess pool, the garbage heap, the effluvia of the soil, and to heredity.

Sanitary Science, Preventive Medicine, in these recent years has grown into a real science. The laboratory and this school have been the chief factors in keeping Vermont in step with this great public health movement. The laboratory has not only done a large amount of scientific work for Health Officers, medical men and the people of Vermont, but it has done that work well. And this school has been the means of translating the scientific findings of the Laboratory into every day terms and applying them to every day problems. The morbidity and mortality records in this state show the results.

As I have had occasion to say in years past the old-time infections that always figured largely in our sickness and death rates are surely being conquered. The unprecedentedly low death rate of typhoid fever alone during the last three or four years in this state is worth more to Vermont than all the money the state has spent in public health work during these years.

During the last five years Vermont has averaged 37.6 deaths a year from this disease. During the same period just before our Health Officers' School and Laboratory were started, i. e., 1893-97, there were 98.8 deaths a year from this cause. In other words, we have now over 60 fewer deaths a year from typhoid fever than twenty years ago.

We are meeting at this time under war conditions. The work of the Health Officers must be suited to the times. War breeds pestilence. Disease of every kind follows in its wake. The infectious diseases, which we now know to be largely preventable, have always flourished in war times, not only in the field but at home. The armies now fighting in Europe have made a remarkable record in dealing with the old infectious camp diseases. It remains to be seen whether we can duplicate this record in civil life.

Our state and country are draining the ranks of the medical profession. The best part of that profession will soon be in the army and navy. Our towns and villages will be short of doctors. Health must be conserved in every possible way. Health Officers must be correspondingly alert.

This is not a time when Health Officers can safely wink at whooping cough, or measles or mumps, or any other of the so called "minor ailments." We cannot safely ignore the promiscuous spitter, or the half cured case of diphtheria or scarlet fever. Ill vented and unvented school houses and picture shows are excellent clearing houses for all kinds of infections, and we may not safely indulge in the "hushup" policy in the presence of typhoid, or small pox, or infantile paralysis, or the venereal diseases. Preventable disease must be prevented. Health must be conserved.

attention to that matter, because we are ready to do for those cases, only we do not get them until sometimes it is too late to do anything, whereas if they came to us a little earlier we might help them.

In addition to that of course you all understand that there will come back from the armies abroad a good many cases of tuberculosis. The people at the Sanitarium, while the quarters are pretty well occupied, are able to take care of more patients. The State has purchased quite a number of tents which have been shipped up there, and such cases, as come back from abroad, will be taken care of at Pittsford, through the summer, in the tents which the State has provided. We have one case, which has been sent to Massachusetts, but will be transferred to Vermont. These things the health officers throughout the towns can look after better than anybody else. It seems to me that these are matters that you ought to give your attention to because you all must realize soon, that a great many of these cases will come back to us and will need care and attention, and they cannot get that care and attention at home. I do not believe that the State of Vermont, and especially you gentlemen representing the health of Vermont, want to have it said that the tuberculous cases of Vermont boys that come to us are cared for anywhere except in Vermont. We have gone on so far in the conduct of affairs connected with the war, and we have tried to keep Vermont in the front rank in all things connected with the conduct of this war, and we are about to face the conditions which follow war, not only cases of tuberculosis, but cases requiring hospital treatment, and I do not believe there will be any trouble in taking care of cases that belong to us, when we find out where they are.

Bearing in mind what Dr. Dalton said, I will not discuss the questions of public health, except to reiterate what I said, that you men come here and receive your education at the expense of the State, and that you are receiving certain instruction which is given by no other state in the same way that we give it.

Of course you all know about the meetings of the State Board of Health. I have had occasion, at different times to attend the regular monthly meeting of the Board, and it was quite a surprise to me to see the way the business was conducted, how the Board and executive officers of the Board gathered at the State laboratory, and each one took up that particular line of work belonging to his department, and the work was discussed by the Board and executive officers, so that the Board is continually in touch with what is going on. It is a great education to see the way in which matters of public health in Vermont are conducted by the State Board of Health.

I do not care to take your time any longer. I suppose the Governor is expected to come to these meetings merely because he is Governor, and for no other purpose, but I wanted to emphasize to you the question of taking care of the children, that are dependent and neglected, out of the fund to

which I have referred, and the question of taking care of Vermont boys,—tuberculous cases—that come out of the camps. I thank you for the attention you have given me.

INFANTILE PARALYSIS CATECHISM

By DR. HAROLD L. AMOSS, ROCKEFELLER INSTITUTE, NEW YORK

The method in which Vermont handles the question of infantile paralysis is distinctly and originally a Vermont institution. I am happy indeed to be a part of it. When in South Africa they had an epidemic of the same disease they cabled Washington for a representative of the United States to go there. The cablegram was referred to us and we selected a product of the Vermont plan, Dr. Edward Taylor, who probably landed at Cape Town yesterday. You have a reputation to maintain. Its foundation was laid in 1897 when Dr. Caverly made his classical contribution to our knowledge of this disease.

I have here a budget of questions, amounting to 119, which I will read and answer. The answers will be those which I think are reasonable, most of them coming from actual experience, some from experiments. The cases which I shall use as examples have been studied in Vermont.

1. *What is infantile paralysis?* A. Infantile paralysis is not a disease of itself. Infantile paralysis is a complication of a disease which we shall describe in a moment. It is the loss of the use of a muscle on account of nerve destruction, caused by a particular disease.

2. *What are the effects?* A. It affects those nerve centers which stimulate muscular contraction.

3. *Does the disease of infantile paralysis affect the muscles directly?* A. It does not.

4. *Does it affect them indirectly?* A. It does.

5. *How?* A. By removing the stimulating effect of the nerve and thus allow the muscle, by disuse, to get smaller.

6. *What is the name of the disease which is called, sometimes, infantile paralysis?* A. The name of it is poliomyelitis, which you can call "polio" for short.

7. *Is poliomyelitis always followed by paralysis?* A. Not always.

8. *Does poliomyelitis affect only infants?* A. It does not.

9. *Are we correct then in applying the term infantile paralysis to poliomyelitis?* A. No.

10. *What is poliomyelitis?* A. It is an acute infection, by a germ, of the brain and cord of a human being.

11. *How does the germ act?* A. It acts by throwing out of function the nerve cell which causes the contraction of the muscle.

12. *Do the nerve cells ever recover?* A. They do, sometimes.

13. *What kind of people have it?* A. All sorts, all races, all ages.

14. *Do healthy people get it?* A. Yes. 80% of the people affected give a history of good health.

15. *What proportion of those affected, or infected with poliomyelitis usually die?* A. In children, one in every four or five; in adults, about one in three.

16. *Why do they die?* A. They die because the muscles of breathing are paralyzed.

17. *What proportion of poliomyelitic cases are paralyzed?* A. A little more than one-half.

18. *Do paralyzed muscles ever recover?* A. Yes. One of the characteristics of poliomyelitis is the rapid recovery of muscles.

19. *What proportion?* A. Something over one-half.

TRANSMISSION.

20. *How is the disease transmitted?* A. It is transmitted from person to person like diphtheria.

21. *Do flies carry it?* A. They do not.

22. *Do rats, cows and horses have it?* A. They do not.

23. *Do domesticated animals have any sort of paralysis?* A. They do but not poliomyelitis.

24. *What are the causes of paralysis in domesticated animals?* A. Injuries, animal epidemics, like human gripe, and rabies.

25. *Has this been proven experimentally?* A. Yes, in Vermont.

26. *To what animals can you give the disease by experiment?* A. To monkeys only.

27. *Do the monkeys thus inoculated have the same disease as the human case.* A. They do.

28. *Is it possible to inoculate from monkey to monkey indefinitely to study disease?* A. Yes.

29. *How much have we learned from the study of experimental poliomyelitis in monkeys?* A. Practically all we know about the disease.

30. *Do foods carry the disease?* A. They do not.
31. *Does water or milk or fruit carry the disease?* A. No.
32. *How then is it transmitted?* A. By personal contact.
33. *Do the germs float in the air?* A. Only after coughing or sneezing, when the germs are on the secretions from nose and throat.
34. *Do the germs multiply outside the human body?* A. They do not except under experimental conditions in the laboratory.
35. *In what part of the body do they multiply?* A. In the brain and spinal cord.
36. *How do the germs reach the outside world?* A. Through the secretions from the nose and throat.
37. *Do they live long outside the human body?* A. No, only two or three hours.
38. *Does drying kill them?* A. It does.
39. *Does heat?* A. Yes, boiling will kill them instantly.
40. *What do they look like?* A. They are very minute, almost round, slightly elongated, distinct organisms.
41. *How large?* A. Sufficient size to be seen with the microscope. When strung up together in a line it would require 125,000 to make one inch. They are the smallest organisms yet discovered.
42. *Can they be grown in the laboratory?* A. Yes, but with difficulty.
43. *Do they live in dust?* A. They do not.
44. *How do they get into the brain?* A. They make their entrance into the brain through the nose, going up through the plate in the floor of the skull, where the nerves of smelling come out.
45. *How long does a sick person give off the infecting agent?* A. About two weeks, generally less, sometimes more.
46. *Is this time variable?* A. It is.
47. *What is a safe quarantine period after the disease is once established?* A. Three weeks.
48. *Is a person about to become ill with poliomyelitis dangerous?* A. Yes.
49. *How long before symptoms appear is this person dangerous?* A. From two to five days.

50. *How do we know this?* A. First from observations on the development of cases after contract; and, second, by monkey inoculations of nasal secretions from a person who, two to five days later, comes down with the disease. This was first found in Vermont.

51. *In what town in Vermont?* A. In Waitsfield.

52. *Is poliomyelitis like any other disease in its period of infectivity?* A. It is like measles, which is contagious two days before breaking out.

53. *What is the ideal quarantine period?* A. From five days before illness until three weeks after. It is difficult to know when a child is about to have the disease except by circumstantial evidence.

54. *How long after a person is exposed to poliomyelitis do symptoms appear if the person is susceptible?* A. The average is seven to ten days, maybe fifteen or twenty days.

55. *Does everybody exposed to the disease get it?* A. No.

56. *What is the ratio?* A. About one and one-half per thousand.

57. *Do healthy persons become carriers of polio as they do of diphtheria?* A. Yes.

58. *Has this been proven by animal experimentation and beyond doubt?* A. Yes.

59. *Has it ever been proven in Vermont by experiment?* A. It has.

60. *Is a healthy carrier of poliomyelitis as dangerous as a polio patient?* A. He is more so because the person who is a carrier does not realize it, and no precaution is taken.

61. *Why do some persons become carriers and others do not?* A. Because the secretions of the nose and throat of some people have the power of killing the germs as they get into the nose of healthy people. That has been discovered in Vermont for the first time.

62. *Does the condition of the nose have anything to do with this killing power of secretions?* A. It does. People who have chronic irritation of the nose and throat do not usually have this neutralizing power in their nasal secretion.

63. *Do adults become carriers?* A. They do. It has been determined by experiment.

64. *Do children become carriers more than adults?* A. Experiments tend to show that this is true.

65. *Does the season have anything to do with the power of the nasal secretions to kill the germ?* A. Apparently this property is least present in the summer months.

66. *In what month do we expect, in Vermont, the greatest number of the cases of poliomyelitis?* A. September. In New York it would be August; in Sweden it would be September.

67. *Are there any winter epidemics?* There have been many. The last winter epidemic reported was in West Virginia, a year ago.

68. *Does hygiene of the nose and throat have anything to do with this neutralizing property?* A. Yes.

69. *What ordinary routine is advisable?* A. The daily, careful rinsing out of the nose and throat with ordinary solution of salt and water.

70. *What precautions must be taken when this is done?* A. The head must be inclined forward and the solution must be warm, and it must be injected slowly and carefully, without force.

71. *What is the proportion of salt to water?* A. One teaspoonful in a quart boiled down to a pint.

72. *How often should this be done?* A. Probably once a day is sufficient.

73. *When?* A. At night.

SYMPTOMS

74. *What are the chief symptoms of poliomyelitis?* A. Headache, fever, stiff neck, and sometimes vomiting.

75. *What is the most suspicious sign?* A. It is stiff neck, and back.

76. *Are there other diseases which look like polio, in the beginning?* A. There are many.

77. *Name them?* A. Ordinary stomach upset, epidemic meningitis, other kinds of meningitis, tuberculous meningitis.

78. *Is the diagnosis difficult?* A. Sometimes it is extremely difficult.

79. *What operative procedure is of invaluable assistance?* A. Lumbar puncture, which means sticking a small needle in the back, reaching the cavity around the cord, and drawing off that fluid for examination.

80. *Is this dangerous?* A. It is not if carefully done.

81. *Does the diagnosis require a skilled and experienced physician?* A. It does.

82. *Is there any one laboratory test by which the diagnosis can be made definitely?* A. No, but much information can be obtained by laboratory tests.

83. *Then the physician must use his judgment and experience in weighing the facts in each case?* A. Yes.

84. *Do all cases act alike and have the same symptoms?* A. No.

85. *Is it possible to make a diagnosis before paralysis begins?* A. Yes.

86. *When does the paralysis usually appear in the course of the disease?* A. Usually before the third day, but it may appear earlier or later.

87. *Is fever always present?* A. We think so.

88. *May it occur at night and be unnoticed by the mother and the child, the child coming down suddenly with paralysis two or three days later?* A. Yes.

89. *Does one attack render persons immune to further attacks.* A. Yes.

TREATMENT

90. *Is there any treatment for the acute stage?* A. Yes. Symptomatic and specific treatment.

91. *Does serum from paralyzed cases do any good?* A. Yes.

92. *How early must it be given?* A. It ought to be given, to get the best results, within forty-eight hours after the onset of the disease and before the paralysis begins. Early diagnosis is essential.

93. *How much serum must be given?* A. At least two ounces, and all the way to four, five and six ounces.

94. *Is there any animal serum yet discovered which is of use in the treatment of poliomyelitis?* A. There have been three put on the market, or advertised, but critical examination by experiments has shown that they are no better than normal animal serum. Monkey serum might be of use because it contains the immune bodies, but the source is very limited.

95. *How long after the attack will the patients' serum be good to treat others?* A. For several years, but the best serum is obtained within two years.

96. *Does the withdrawal of blood from recovered cases injure them?* A. No.

97. *Should young children or older persons volunteer to give serum for the treatment of other cases?* A. The unselfish persons always do.

98. *Should massage be given in the acute stage?* A. It should not. It will prolong the period of acute sensitiveness.

99. *Should the patients exercise?* A. While in the acute stage, no.

PREVENTION.

100. *Is there any vaccine by which we can prevent the disease?*
A. No.

101. *Is there any hope of getting one?* A. There seems to be some hope of getting a preventive.

102. *Should serum be used for prevention?* A. If one has plenty of serum it may be used, but when you remember that only one person, or one and one-half, in a thousand, or of children under sixteen years of age, one in two hundred, take the disease, it might be a waste of serum when it is scarce.

103. *Do all children in a family take the disease when one is attacked?*
A. They do not.

104. *Can a child have the disease and the parents not observe it until later in life when there is a difference in the size of the legs, or pulling power of certain muscles?* A. That often happens.

105. *Then paralysis is not always an accompaniment of the disease?*
A. No.

106. *Then the first stage of the disease may be very mild?* A. It may be so mild as to escape unnoticed.

107. *Is the number of unreported cases probably decreasing on account of better diagnosis?* A. I am sure of it in Vermont.

108. *How can you explain a case occurring on a farm with no active cases near it, so called sporadic?* A. In every instance some member of the family has been travelling in another community.

109. *Has the following instance ever happened in Vermont: A healthy adult visits a child two days before the child has poliomyelitis. The adult goes to another part of the state to visit, and a child in this family has the disease within ten days after the adult comes?* A. That has happened in Vermont.

110. *Then polio is a difficult disease to eradicate?* A. Yes, by reason of the contagiousness before the actual onset of symptoms and on account of the presence of carriers. So is measles.

111. *Upon what does our present method of prevention depend?*

A. First, on the early diagnosis of paralytics and non-paralytics. Second, upon the quarantining of cases just when they occur. Third, on the quarantine of all persons who have been in contact with that case. Fourth, on the education of the public to call the physician early, and co-operate with physician and State Board of Health.

112. *Has this done any good in Vermont?* A. Yes. Ask Dr. Caverly.

113. *Are there not waves or periodic recurrence of epidemics?* A. There are.

114. *Can this be explained?* A. Two facts can be given. First, we know from experiments on monkeys over a period of nine years, following the same germ or strain of germs, and we know from experience in epidemics and in localities like Vermont, that there is a wavelike line of strength of infecting power of these germs. In a given epidemic the germs are of greater infecting power early, and this gradually falls off. It has been found in a series of monkeys that the infecting power will rise and then recede forming a wave. Second, only 3 persons out of 2000 are susceptible; one wave sweeps over and burns out the susceptible material, and four years later new grass is grown to be burned, if you use the metaphor of a prairie fire.

115. *Does this happen in other epidemics?* A. Yes. Examine your statistics on other communicable diseases.

116. *Who particularly should be protected?* A. The young, because they are more susceptible. Persons under sixteen are more susceptible, and it is possible to protect persons younger, and with the chance that they may become less susceptible later. The older a person gets the less susceptible he is, but in older persons the death rate is much higher than in children.

117. *Do we expect any cases this summer?* A. Does the Burlington Fire department expect any other fire simply because they had one last night?

118. *Do we expect a second batch of cases to be hatched out after it once makes its appearance in one of our communities?* A. No, not with the present organization of our State Health Officers.

119. *What is the health officer's duty in regard to poliomyelitis?* A. First, prompt notification of the State Board of Health. Then, proper enforcement of quarantine in the SPIRIT of the law. Third, assisting in the education of the laymen, to call the physician early. Fourth, absolute co-operation with the physician in your district.

120. *What ought to happen to a health officer who neglects these duties?* A. The answer to that is a question. What punishment is meted out to any outpost on the firing line when he falls asleep? (And I understand there are plenty of sunrises in Vermont).

BULLETIN

OF THE
VERMONT STATE BOARD OF HEALTH

Vol. XVIII, No. 4
Issued Quarterly at Rutland, Vermont

The BULLETIN is published quarterly by the State Board of Health under the authority of Section 5 of Act No. 90, Legislature of 1900. It will be sent to all Boards of Health. A copy will be sent to any person in the State upon request addressed to the Secretary, Charles F. Dalton, M. D., Burlington.

DO YOU WANT THE BULLETIN?

One more opportunity is given for retaining names on the mailing list of the BULLETIN. If you have not already filled out a blank request on the last page of this number, do so at once. Before issuing the next BULLETIN, the mailing list will be revised and names of those from whom no request has been received will be removed. The BULLETIN is free. IF you want it, sign now.

RESOLUTION.

Unanimously passed by rising vote at the 19th Annual School for Health Officers.

WHEREAS, we, the Health Officers of the State of Vermont, in session assembled, wish to give expression to our devotion to the cause of humanity,

THEREFORE, Be it Resolved, that we empower Dr. F. Thomas Kidder, Treasurer of the State Board of Health, to deduct from our per diem One Dollar per man, and to transmit the total sum to the State Treasurer of the Red Cross.

HENRI L. PACHE,
F. THOMAS KIDDER,
CHARLES F. DALTON,
JOHN J. DERVEN,
EDWARD R. CLARK,
Committee.

As a result of this resolution the sum of over Two Hundred Dollars has been turned over to the Red Cross.

COMMUNICABLE DISEASES REPORTED TO THE
STATE BOARD OF HEALTH.

	March	April	May
Smallpox	8	19	5
Diphtheria	13	18	8
Scarlet Fever	16	20	27
Typhoid Fever	—	1	13
Measles	36	56	161
Whooping cough	153	128	314
Mumps	110	101	127
Chicken-pox	107	125	68
Cerebro-spinal meningitis	2	—	—
German measles	374	355	441
Erysipelas	6	7	2
Pneumonia	12	8	12
Tuberculosis	14	16	24
Syphilis	10	14	15
Gonorrhea	25	21	39

REPORT OF THE LABORATORY OF HYGIENE.

The figures below represent the analytical work performed in the Laboratory of Hygiene during the months of February, March and April, 1918.

Cultures from the throat examined for diphtheria bacilli.

	Feb.	March	April
Positive	15	22	40
Negative	159	104	134
Total	174	126	174

Specimens of blood examined for the Widal reaction.

	Feb.	March	April
Positive	4	5	5
Negative	32	28	38
Total	36	33	43

Specimens of blood examined for the malarial parasites.

	Feb.	March	April
Positive	0	0	2
Negative	0	0	2
Total	0	0	4

Specimens of sputum examined for tubercle bacilli.

	Feb.	March	April
Positive	25	30	44
Negative	109	168	162
Total	134	198	206

Specimens of blood examined for the Wassermann reaction.

	Feb.	March	April
Positive	25	11	10
Negative	59	57	76
Suspicious	11	4	0
Total	95	72	86

Specimens of pus examined for the presence of gonococci.

	Feb.	March	April
Positive	15	16	5
Negative	27	12	15
Total	42	28	20

Specimens of sputum examined for the differentiation of types of pneumonia.

	Feb.	March	April
Type III	1	0	0
Type IV	2	1	0
Unsatisfactory	2	4	0
Total	5	5	0

Specimens of blood examined for white diarrhoea of fowls.

	Feb.	March	April
Positive	79	0	4
Negative	165	0	7
Suspicious	6	0	0
Total	250	0	11

Specimens of water examined for potability.

	Feb.	March	April
Public supplies			
Normal	19	23	23
Present polluted	1	1	1
Past polluted	5	6	6
Private supplies			
Normal	6	2	2
Present polluted	4	3	3
Past polluted	4	6	6
Total	39	41	41

Specimens of milk (detail table following) examined for compliance with legal standards.

	Feb.	March	April
Above standard	11	17	38
Below standard	26	22	73
Total	37	39	111

Specimens of foods (detail table following) examined for compliance with legal standards.

	Feb.	March	April
Legal	12	13	9
Adulterated	2	3	5
Total	14	16	14

Specimens of drugs (detail table following) examined for compliance with legal standards

	Feb.	March	April
Legal	6	1	0
Illegal	2	1	0
Total	8	2	0

Specimens of liquor examined for the Commissioner of State Taxes under the Fourth Class Liquor License Law.

	Feb.	March	April
Legal	1	0	0
Illegal	0	0	0
Total	1	0	0

Examinations made for the Department of Justice.

	Feb.	March	April
Autopsies (Medico-legal)	0	2	3
Miscellaneous	0	17	6
Total	0	19	9

Autopsies for cause of death where no foul play was suspected.

	Feb.	March	April
Autopsies	3	0	1
Total	3	0	1

Miscellaneous examinations (unclassified).

	Feb.	March	April
Positive	36	33	54
Negative	76	72	76
Total	112	105	130
Grand Total	950	684	848

RESULTS OF EXAMINATION OF SAMPLES OF MILK

No. 118 ACTS of 1908.

FEBRUARY, MARCH AND APRIL, 1918.

MIDDLEBURY

Below Standard—Not Absolutely Clean

College Dairy

Below Standard—Dirty

College Dairy

Below Standard, Dirty and Poor Quality

College Dairy

BENNINGTON

Standard or Above

George Smith

H. Harmon

L. Briggs

P. Jacobs

H. Fay

T. Sweet

S. VanSantvord

L. Harwood

S. R. Lake

Papas & Violas

F. Stewart

Below Standard—Not Absolutely Clean

George Smith

J. C. Colgate

N. S. Thompson

Hewitt & Sons (3)

G. Chattelle

G. H. Moore

Bert Sanders

E. D. Bushnell

S. VanSantvord

P. Jacobs

W. Rose

H. Sanders, Jr.

J. Sanders

Chas. Sanders

H. M. Russell

Fred Mattison

Armstrong Farm

H. W. Morgan

Below Standard—Poor Quality Chemically

J. Scully

F. D. Eaton

Below Standard—Poor Quality—Chemically and Physically.

J. Scully	J. C. Colgate
H. H. Shields	H. Rice

MANCHESTER.

Standard or Above

E. M. Taylor

Below Standard—Poor Quality—Chemically and Physically.

R. D. Brown
BURLINGTON.

Standard or Above

J. A. St John	S. Rosenberg
H. A. Bixby	Spear Street Dairy (Stewart) (2)
M. A. Ryan	F. L. Murray
G. Saiger	Ritchie's Creamery
M. & B. Callen	Mrs. C. Little
Univ. Meat & Grocery Co.	A. Larrow
Suckstoff (2)	B. I. Newton
N. W. MacMurphy	B. Cash Market

Below Standard—Not Absolutely Clean

E. B. Blair	A. Franzois (2)
G. Saiger	G. C. Allen (3)
I. Rosenberg	Ritchie's Creamery (2)
Kielich	S. Millstone
A. Cohen	A. H. Loudon
Bostwick Bros. (3)	H. Cannon
N. W. MacMurphy (2)	H. Wassermann
B. I. Newton	Wm. McGrath
E. S. Brooks (2)	J. A. St. John
Genereaux (2)	T. P. Welch
A. W. Parizo (2)	Leary Estate
Larochelle (2)	Adler
J. O'Brien	F. X. Saltus
D. M. Bean (2)	B. Cash Market
Spear St. Dairy	Lareau Brothers
(Holt) (2)	M. & B. Callen
Bixby	Larrow Brothers
Steele & Butler	

Below Standard—Dirty

J. O'Brien	Steele & Butler
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Below Standard—Poor Quality—Chemically

L. E. Brigham	J. A. St. John
---------------	----------------

Below Standard—Poor Quality—Chemically and Physically.

Spear Street Dairy

McGrath

(Holt)

Giffon's Market

Adler (2)

WILLIAMSTOWN.

Standard or Above

Jessie Martin

NEWPORT.

Below Standard—Not Absolutely Clean

W. Richmond & Son

A. Wells

Below Standard—Chemically and Physically

A. Chaquette

DANBY.

Below Standard—Poor Quality—Chemically and Physically.

Ed. Barrett

PROCTOR.

Standard or Above

W. J. Norris

Below Standard—Not Absolutely Clean

W. Sharp

Below Standard—Chemically

W. H. Mead

Below Standard—Chemically and Physically

B. Hier

BARRE.

Standard or Above

W. C. Camire

Below Standard—Not Absolutely Clean

C. Pierson

W. C. Camire

Chas. Falconer (2)

E. C. Webster (2)

C. H. Gordon (2)

Barre Creamery Co.

BELLOWS FALLS.

Standard or Above

W. E. Pierce

M. R. Granfield

J. Smith

W. S. Fenn

Below Standard—Not Absolutely Clean

D. Drislane

L. G. Rice

Pat Harty

C. A. Peck

Be it long or short, the next few years are bound to be strenuous times for public health men. These are times, which call for intelligent, fearless, but impartial action. Every town in the state has a right to expect vigilance on the part of its health guardians, although it may not always show its appreciation in dollars and cents.

We have been told of late that there are ways of doing "our bit" in this war at home. Community health will prove a big asset as the war goes on. Let me urge on each one of you, as a health officer and patriot, not to relax your efforts, as regards the community in your keeping, at this time. If this war is teaching us anything, it is the lesson of thorough organization of all our material resources to the minutest detail. Personal and community health are the most important of all these material resources. There is not a cross roads hamlet in the state, which can safely be ignored as regards sanitation. Every one of your towns is a factor in the health of the commonwealth. So let me say to each health officer, take your job seriously. Do not confine your activities solely to routine sanitary work. Do more than quarantine, abate nuisances and sign burial permits. Search out neglected but dangerous infections, like the tuberculous, or the syphilitic, don't forget that you have a duty as regards unsanitary public buildings, dairies, bake shops, and markets. Furthermore, lend your aid to all the health activities of the government, such as the Red Cross, the Y. M. C. A. or K. C. (both of which have a very intimate relation to health); and to the Baby Saving Campaign, which is just now beginning. Keep in touch with all such activities and contribute freely of your time and services, as well as money.

The State of Vermont may reasonably expect intelligent, up-to-date service from her local health officers. She has furnished you all these years the best facilities for keeping posted. She now expects results. Community health conservation is one of the results looked for.

ADDRESS BY GOVERNOR HORACE F. GRAHAM

Dr. Caverly and Health Officers of Vermont:

It is rather a dangerous thing for a layman to undertake to make an address or even to talk to a gathering like this, because he is apt to say something that he ought not to and leave unsaid some things he ought to say, so I thought I would be on the safe side, and this afternoon I wandered over to the laboratory and ran on to Dr. Dalton, and said, "What is expected of me tonight?" He said, "You are not expected to take much time," so having that in mind I will follow his suggestion.

Perhaps I may compliment those of the profession here, on the advance which has been made in the matter of public health. Going back a

reasonable time and a number of years you find the subject of medicine and of public health treated in an entirely different way from what it is treated now and for that reason and purpose, and having that in mind, I thought I would relate to you a little of the ancient history of medicine, and in doing so I shall have to quote from quite a noted book written by a very celebrated Frenchman, Le Sage. It appears that a young man Gil Blas by name who became assistant to a very celebrated doctor in Spain, one of the recognized practitioners of that day, and he tells us in the course of his writings that the chief treatment which Dr. Sangrado's patients received was either physic or copious bleeding, and that was given in all cases, under all conditions. One of the duties that fell to this young man was to record the coming and going of the patients and the visits the doctor made, and he said this register was a veritable register of the dead, for those who escaped the physic succumbed to the bleeding.

Now I think perhaps that we do not all appreciate the work that is being done by the public health system in Vermont. I can say, that this Board and this Health Officer's School is something that is supported entirely by the State, and the several communities, and you men who come here from year to year to attend these meetings, come here at the expense of the State. Now, no state in the Union, as I understand it, has a system that is equal to the system we have by which you are all brought together and have the benefit of each other's advice and also the privilege of listening to those men who come to address you.

There are one or two little things I would like to call your attention to because they bear directly upon the public health of the State. The last legislature remodelled our probation system and added to it what is known as a Board of Charities and Correction. Of course the legislature felt that this was a new move and they rather hampered the activities of the Board by limiting the amount of money which the Board could use. After the Board got into working order and was doing some good work, some of us took hold and made a canvass through the State and raised an additional sum of money, which amounts to something around \$2500. That money is placed in the hands of three trustees, the active one being the secretary of the Board, Dr. Dalton, and they have canvassed the situation and believe that this fund should be used, as far as possible, for the relieving of certain cases that need operation and temporary treatment, so that some of those children who would come under the jurisdiction of the Board and require more expert medical assistance, can have certain things done for them, which perhaps the Board would not feel justified in doing, nor the town, by making application to this Board and having the money used for these purposes.

Now, the question of tuberculosis. We find that a good many of the cases that come to us, and which the State is supposed to relieve, come to us rather late, and I feel that the health officers should give a little more

Below Standard—Poor Quality—Chemically and Physically.

Eugene Clark
L. G. Converse
WINDSOR.

E. P. Gray

Standard or Above

Austin farm

Below Standard—Not Absolutely Clean

D. Blanchard
Geo. Gates

Gould farm
Harry Hunt

Below Standard—Poor Quality Chemically

Jas. Work

Below Standard—Poor Quality Chemically and Physically.

Miss Driver
C. Bartlett

Henshaw

Submitted Samples of milk for February, March and April

Standard or above	26
Below standard not absolutely clean	3
Below standard poor quality chemically	3
Poor quality chemically and physically	1
	33

MILK STANDARD—1. Milk is fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half (8.5%) per cent of solids not fat and not less than three and one-quarter (3.25 %) per cent. of milk fat.

MEDICO-LEGAL CASES.
SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM FEBRUARY 1, 1918 TO MAY 1, 1918.

Lab- oratory Number	Date Rec'd	Town	Material	Examined for	Result
85652A	Apr.	ADDISON COUNTY 29 Middlebury.....	Autopsy.....	Cause of death.....	Burning (Accidental).....
84789A	Mar.	BENNINGTON COUNTY 13 Bennington.....	Meat and Stomach of fox.....	Poison.....	Negative.....
85655A	Apr.	10 Bennington.....	Organs of fowl.....	Poison.....	Negative.....
85037A	Mar.	CHITTENDEN COUNTY 20 Burlington.....	Autopsy.....	Cause of death.....	Case pending.....
84465A	Mar.	FRANKLIN COUNTY 1 St. Albans.....	Autopsy.....	Cause of death.....	Carbolic acid.....
84466A	Mar.	1 St. Albans.....	Stomach and viscera.....	Poison.....	Trace of carbolic acid.....
84467A	Mar.	1 St. Albans.....	Bottle of fluid.....	Poison.....	4 1/2 % carbolic acid in ale.....
84468A	Mar.	1 St. Albans.....	Bottle of fluid.....	Poison.....	Croelin (Pearsons).....
84841-51A	Mar.	13 St. Albans.....	Eleven samples of flour.....	Arsenic.....	Two contain arsenic nine do not.....
85196A	Mar.	26 St. Albans.....	Organs of bull.....	Arsenic.....	Negative.....
85931A	Apr.	17 St. Albans.....	Bottle of fluid.....	Composition.....	Not completed.....
86107A	Apr.	ORLEANS COUNTY 22 Orleans.....	Autopsy.....	Cause of death.....	Case pending.....
86480A	Apr.	WASHINGTON COUNTY 30 Middlesex.....	Autopsy.....	Cause of death.....	Case pending.....
86481A	Apr.	30 Middlesex.....	Stomach contents.....	Poison.....	Case pending.....
86482A	Apr.	30 Middlesex.....	Blood smears.....	Blood.....	Case pending.....
86484A	Apr.	30 Middlesex.....	Handkerchiefs.....	Identification.....	Case pending.....
86485A	Apr.	30 Middlesex.....	Pair of shoes.....	Blood stains.....	Case pending.....
85087A	Mar.	WINDSOR COUNTY 22 Norwich.....	Stomach of cow.....	Poison.....	Negative.....
Total 28					

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING FEBRUARY, MARCH AND APRIL 1918.

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination				Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler		Under "Food and Drug Law"					
						Legal	Adul-terated	Mis-branded	Domestic Product Submitted		
Can of salmon.....	84282A	Feb. 23*	*		Addison Co.						
Flour.....	84287A	Feb. 23			Middlebury.				1		
Flour.....	84283A	Feb. 23			Middlebury.				1		
Flour.....	84284A	Feb. 23			Middlebury.				1		
Flour.....	84286A	Feb. 23			Middlebury.				1		
Flour.....	84285A	Feb. 23			Middlebury.				1		
Addison County.....	Total.....								6		6
Peters' Milk choc.....	83718A	Feb. 12			Bennington Co						
Canned tomatoes.....	84558A	Mar. 14			Readsboro.				1		
Vinegar.....	85392A	Apr. 2			Arlington.				1		
Ice Cream.....	85880A	Apr. 17	D. A. Ward.		Manchester.	1					
Ice Cream.....	85876A	Apr. 17	C. L. Hudson.		Bennington.		1			10% butter fat.	
Ice Cream.....	85881A	Apr. 17	G. L. Harwood.		Bennington.		1			10% butter fat.	
Ice Cream.....	85894A	Apr. 17	Pappas and Violas.		Bennington.		1			12% butter fat.	
Ice Cream.....	85878A	Apr. 17	Chris Savas.		Bennington.		1				
Ice Cream.....	85879A	Apr. 17	W. L. Gokay.		Bennington.		1				
Bennington County.....	Total.....					4	3		2		9
Maple Syrup.....	83529A	Feb. 5			Chittenden Co						
Spts. Camphor.....	84638A	Mar. 7			Burlington.		1				
Tinct. opium.....	84637A	Mar. 7			Burlington.		1				
Cane Syrup.....	84928A	Mar. 18			Burlington.		1				
Butter.....	85050A	Mar. 21			Burlington.		1				
Olive oil.....	85081A	Mar. 22			Burlington.						
Butter.....	85115A	Mar. 25			Burlington.		1				
Peanut butter.....	85146A	Mar. 25	C. A. Barber.	Crystal Confect. Co.	Burlington.				1		
Peanut butter.....	85149A	Mar. 25	A. & P. Tea Co.	Wilmar Mfg. Co.	Burlington.				1		
Peanut Butter.....	85147A	Mar. 25	F. E. Perkins.	Crystal Confect. Co.	Burlington.				1		
Peanut Butter.....	85148A	Mar. 25	F. E. Howard.	Armour Co.	Burlington.				1		
Peanut Butter.....	85159A	Mar. 25	Champlain Valley Fruit Co.	S. W. Hoyt.	Burlington.				1		

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It is not our desire to cut from our list the name of any person who is actively interested in the bulletin and who still wishes to receive it regularly. We are of the opinion, however, that many are receiving the bulletin who have not the time or inclination to make proper use of it, necessitating an unnecessary expense in the printing and mailing. We, therefore, ask you to fill out the blank below and mail to this office at once, if you have not already done so. If you do not comply with this request, it will signify that you are not interested in the bulletin and your name will be taken from our mailing list.

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OF THE

Vermont State Board of Health

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C R Newell Instructor in
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University of Ill
Urbana Ill

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Montpelier, Vt.
1920

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CANCER.

FACTS WHICH EVERY ADULT SHOULD KNOW.

Cancer, if discovered early and treated immediately, is a curable disease. Moreover, if certain very definite conditions which are now known to precede cancer are avoided or cured the disease may be prevented.

Why, then does the thought of this disease arouse so much dread? Probably because surgical and every form of treatment is seen to fail in case after case among our relatives and acquaintances. This only too common experience has created an atmosphere of despair and a sense of fatalism about cancer which it is very difficult to overcome. Worse, still, this feeling results in a condition of public ignorance about the disease, an ostrich-like attitude toward the thought of it, a running away from the facts, which itself does as much as anything else to increase the number of needlessly fatal cases.

The fact is that cancer, like tuberculosis, may be cured when discovered and treated early enough, but unfortunately its early signs are usually so painless, and seem so trivial that neglect of the danger is only too easy; moreover, and most important point of all, even a delay of a few weeks too often changes the whole prospect.

Two things are required if the unnecessary sacrifice of life to this ancient enemy of the human race is to be prevented. First, people must know the danger signals and recognize their significance in time; secondly there must be widespread understanding of the hopeful message of modern medical science that many *cases of cancer in the early stages are curable*.

Tuberculosis is no longer dreaded as equivalent to a death sentence. This is because the public has come to understand the disease and how it is cured. The same effort is now being made to have all intelligent adult people understand the elementary facts about cancer. Once the people know these facts the general dread of cancer should change to a more sensible and rational feeling of hope. But vigilance is the price of safety, and to "keep well" one must learn the guide posts of trouble.

THREE KINDS OF NEEDLESS WORRY.

Considering that this disease causes so much fear and worry and is after all very formidable, it is reassuring to know that three common forms of worry about it are quite unnecessary. Let us consider these:

1. *Is cancer contagious?*—So far as we know, it is not. No germ capable of causing cancer in human beings or animals has ever been demonstrated. Nor is there any reason to believe the stories so often told of "cancer houses" or "cancer villages". The occurrence of a large number of cases in a particular house or street has usually been shown by careful investigation to be due to the fact that the house or the street has been occupied by an unusual proportion of persons above middle age. Since cancer is a disease of middle and later life there would naturally be more cases under such circumstances. Likewise, stories of excessive prevalence of cancer in particular villages are usually traced to small communities from which most of the young people have departed. It is due to this cause that the cancer death rate of Vermont

and New Hampshire is so high, the young people having gone away in large numbers to work in the manufacturing towns of other States. The Western States, largely populated by younger people, have a very low cancer rate.

The possibility of transferring cancer from one person to another by direct contact should, therefore, be disregarded. In all the thousand of recorded operations for cancer there is no report of a case in which cancer was acquired from the patient by any surgeon or nurse. Cruel neglect of some patients has been known to occur because of groundless fear of "catching" the disease. This is especially unfortunate, since cancer in the incurable stages demands the most patient and humane care of the sufferer. While there is no danger in treating or dressing a cancer case, ordinary cleanliness requires that soiled dressings or the discharges from a patient with cancer be carefully collected and disinfected and the dressings burned, not because there is any danger of contagion of cancer, but because the discharges and dressings contain germs, such as those which cause boils, erysipelas, and other skin inflammations.

2. *Is cancer inherited?*—Practically speaking, it is not. Nothing could be more convincing than the way life insurance companies look at this matter from a business point of view; and these concerns, when deciding whether a person is a "good risk", disregard evidence that cancer occurred in one or both parents or in other ancestors. Their own carefully kept records of years of experience prove that this is not an indication that the persons to be insured will contract the disease. Indeed, recent and very thorough studies of the statistics of life insurance companies have conclusively established that there is, ordinarily speaking, no occasion for apprehension even if both parents died of cancer.

It is true that certain experiments with mice which have been much discussed in the newspapers tend to show that the occurrence of cancer in these animals is greatly increased by inbreeding. But, even though this fact has been established, it is to be noted that the increase can be obtained only in certain strains of white mice, not in all varieties, and has never been observed in white rats, guinea pigs, rabbits, or other animals in which cancer occurs. Even those holding the strongest views on this topic only maintain that a tendency to cancer is inherited and not the disease itself. The most that could be fairly argued is that people whose families seem particularly subject to cancer may well inform themselves with special care regarding the symptoms and be at least as alert as other intelligent people to understand the warnings of early cancer. But certainly they need give themselves no further concern.

3. *Is cancer a "blood disease?"*—It is not, and should never be thought of as similar to the venereal diseases, or as related to any kind of misconduct or moral discredit in the individual or the family.

HOW CANCER DEVELOPS.

It is well known that the tissues of the body, the muscles, the glands, the bones, etc., are each composed of a large number of very tiny cells. These cells have been well compared to the bricks of a building, and they are held together by a material which may be likened to mortar. These cells, however,

are not composed of dead material, like bricks. They are alive, constantly growing and dying off, according to certain laws which we do not yet completely understand.

Sometimes certain of these cells begin to grow and develop along lines which are not in harmony with the usual order. A little group of the cells seems to form a kind of lawless colony which constitutes an unhealthy and growing spot in the body. This spot may occur on the skin, in the breast, in the stomach, in the throat, or in any other part of the body. Frequently the cells form a little hard nodule or lump, which can easily be detected by the sense of touch, and which can very easily be removed by the surgeon at the beginning.

If the original mass is not removed, it usually continues to grow and to penetrate into the surrounding tissue. This penetration indeed, is the fatal difference between benign, or harmless growths, like warts, and malignant growths, or cancers. Finally a large mass is formed and minute portions become detached and are carried by the circulation of the blood or lymph to other parts of the body. Now, if any ordinary normal cell gets out of place in the body it is usually of no consequence whatever; the cell promptly dies. Cancer cells, on the other hand, have acquired such a power of survival that they continue to grow wherever they are deposited and new cancers are the result.

CAUSE OF CANCER.

It is commonly said that we do not know the cause of cancer. This means that we do not know just what makes the first small cell or group of cells change their character and take on the extraordinary power of uncontrollable and malignant growth. But something is known (far more than most people realize) about the conditions which seem to favor that fateful change. Especially do we know that cancer often arises after long-continued *local irritation* of various kinds, and in and about benign growths or ulcerations. Cancer of the lip and mouth has been known to come from burns from pipe stems, constant irritation from bad teeth, and among East Indian races from chewing the betel nut, which has a rough irritating exterior. Cancer of the external abdomen in the natives of Kashmir, never observed among other races, arises from the burns from the kangri baskets of live coals which these mountaineers wear as a kind of warming pan. Cancer of the esophagus or gullet is observed in Chinamen who eat their rice too hot, while it is noticeably absent among their women, who eat the rice cold at a "second table". Cancer of the stomach may follow an ulcer of the stomach. Cancer of the uterus has frequently been traced to neglected tears (from childbirth) and ulcerations; cancer of the skin from irritated moles and warts, and breast cancers from neglected sores, cracks, and especially from lumps which were at first **benign** (harmless). Indeed, it is not known that there is no hard and fast distinction between benign and malignant growth, rigidly separating these two classes.

Benign tumors of the breast, cysts, ulcerations, etc., not cancers at first, may change into malignant growths or cancers. In a true sense prompt recognition and treatment of any of these pre-cancerous conditions may really *prevent cancer*. Prevent any form of chronic irritation and you prevent at

least the probability of cancer. Persistent ulcerations, cracks, and sores, warts, moles, or birthmarks which change in appearance or grow larger, should be removed. Intelligent attention to these and other danger signals, and prompt extermination by a competent physician or surgeon, will greatly reduce the probability of one's having cancer.

THE CHIEF DANGER SIGNALS OF CANCER.

The most dangerous thing about cancer is that fact that its onset is frequently painless and insidious. If cancer in its beginning caused as much pain as does an ordinary toothache or earache, people would at once take warning, and most cases would be attended to without the fatal delay. In cancer, however pain—that blessing in disguise—is usually not present at first. It is therefore the part of wisdom for all intelligent adults to know the commonest symptoms or danger signals of the more important types of the disease. It must be remembered that these signals do not necessarily mean cancer, but they should lead to a prompt consultation with a good physician or surgeon. But remember that no really competent doctor will treat a condition that might mean cancer without making a careful examination. *Insist on thorough examination.*

CANCER OF THE BREAST.

This is one of the most hopeful and curable forms of cancer because early diagnosis is comparatively easy. Nevertheless the disease spreads rapidly from this locality and immediate treatment is imperative. In general, cancer is not painful during the curable stages, and in the breast in particular any lump demands prompt and careful attention. While many persistent lumps are not cancer any of them may turn into cancer. Those which appear in women over 30 years of age are especially important. All lumps in the breast at any age should, therefore, be promptly seen by a competent surgeon since, as a rule, those which persist for a month or more demand removal. The operation for the removal of small lumps is comparatively trifling, and little or no disfigurement takes place if the lump proves benign. On the contrary, delay means a radical operation which, though necessary, is mutilating and may be dangerous. It should be remembered that any lump which is allowed to persist until it is recognized readily as cancer has already reached the point where any operation must be extensive and where the disease will prove fatal if further neglected.

CANCER OF THE UTERUS.

Another frequent seat of cancer in women is the uterus. Formerly this was regarded among the most hopeless forms of the disease, but now it is placed among the more hopeful, because it is possible to recognize certain danger signals in an early stage. When thus early treated, removal is relatively safe. Every woman should be well acquainted with the main danger signals of this form of cancer. Although these are not necessarily certain signs of cancer they are warnings which should lead to immediate consultation with a doctor and to a prompt and thorough examination.

The first warning signs of this disease are (1) any change in the duration and frequency of menstruation, and (2) any change in the character of a discharge which has been usual with the patient; (3) any return of bleeding after the change of life; that is, after regular periods have ceased; (4) any spotting with blood, following an injury to the mouth of the womb, as with douche, examination, etc. This is especially significant. Watery, slightly stained discharges are also particularly important. Treatment without a careful examination by a doctor to make certain of the cause of the trouble is wrong, and by causing delay may still further endanger life.

EXTERNAL CANCER.

There is less excuse for failure to suspect the possibility of cancer on the external surface of the body where the growth can easily be seen: *Cancer of the lip or tongue*, for instance, should be suspected when any sore on these parts does not heal and disappear. Cancer on the lip in its beginning often resembles the common cold sore, but of course, persists when a cold sore would rapidly clear up. This disease is more common among men than women.

Cancer of the tongue has been frequently traced to constant irritation from badly fitting or broken dental plates, sharp edges of decayed teeth, etc. Smoking, as a form of chemical irritation, sometimes produces a chronic inflammation of the tongue and the formation of small fissures or ulcers. Any ulceration of the tongue not due to syphilis, and not responding quickly to treatment, should be considered malignant until it is proved otherwise. Cancer of the tongue spreads rapidly, necessitating a severe and dangerous operation, and only if the case is seen early and then promptly treated is there even a fair chance of permanent cure. Nitrate of silver or other caustic must not be applied to irritative ulcers of the tongue. In the case of unrecognized cancer this treatment will only make matters worse.

Cancer of the skin frequently originates in benign lumps or ulcerations. Most warts and moles are unimportant, but those which change in size, shape, or appearance, or are subject to irritation, should be regarded with suspicion. Their removal may prevent cancer. Persistent irritation, ulcerations, or lumps anywhere on the skin should be watched. If there is an increase in size, or if ulcerations appear, a competent physician should at once be consulted. Proper treatment of these so-called "pre-cancerous" lesions and of actual early cancer of the skin means as a rule a minor operation or the use of X-rays or radium. The use of caustics in competent hands is sometimes successful, but as a rule other methods are safer and produce less deformity.

CANCER OF THE DIGESTIVE ORGANS.

Cancer of the stomach, intestines, and liver are frequent, and formidable types of the disease which are common to both sexes and cause about 35 per cent of all deaths from cancer. While the probability of cure is here considerably less than in the locations previously discussed, cancer of these organs can still be successfully removed if the diagnosis is made early enough. This statement does not apply to cancer of the liver, since the disease can not be removed from that organ. As a matter of fact, primary cancer in the liver, is rare; usually it is secondary to cancer in adjacent organs.

Cancer of the stomach is at best one of the most difficult forms of the disease with which to deal, and the earliest possible attention to danger signals is doubly imperative. The onset is often so insidious that malignancy may be far advanced when the first warning comes. Since cancer of these organs can not be seen until the abdomen is opened it is necessary at first to depend largely upon symptoms for a diagnosis. The X-ray, however, can sometimes demonstrate suspicious changes in the outline of the stomach or intestines. Moreover, the normal function of the organ attacked is usually interfered with early, and this ought to arouse suspicion. Indigestion is a very common complaint, but in a person over 40 who has not had it before, especially if accompanied by loss of weight, it is something that should at least lead one to think of cancer. Indigestion is by no means a sure indication of cancer of the stomach, but if it persists it is well to be on the safe side and have a thorough examination with the aid of all modern methods of diagnosis, particularly the X-ray. A change in appetite, such as a distaste for meat, is not infrequently a symptom of cancer of the stomach. Pain in the pit of the stomach and vomiting, often without visible blood are still graver danger signals.

The first symptom of *cancer of the intestines* are similar. Persistent diarrhea, with bleeding, is a common warning sign. *Cancer of the rectum* is frequently mistaken for hemorrhoids and treated as such. Bleeding from the rectum is often due to this cause, but it may be an early symptom of cancer, and therefore in any event demands *thorough examination*. Only in this way can the difference be determined with certainty. Treatment of these conditions without examination is regrettably frequent, and for his own protection the patient must insist on careful physical examination.

SUMMARY.

These facts about cancer can not be too often repeated, and should be known by every person over 30 years of age.

1. Cancer at the beginning is usually painless and its onset for this reason is especially insidious and dangerous.

2. Cancer is at first a small local growth which can be safely and easily removed by competent surgical or other treatment.

3. Cancer is not a constitutional or "blood" disease.

4. Cancer is not contagious.

5. Cancer is, practically speaking, not hereditary.

6. Every lump in the breast should be examined by a competent doctor.

7. Persistent abnormal discharge or bleeding is suspicious.

8. Sores, cracks, lacerations, lumps, and ulcers which do not heal, and warts, moles, or birthmarks which change in size, color, or appearance, may turn into cancer unless treated and cured.

9. Probably 60 per cent of cancers of the rectum are first regarded as piles. Insist on a thorough medical examination.

10. Continued irritation in some form is the usual cause of cancer. It rarely results from a sudden injury.

11. A doctor who treats a suspicious symptom without a thorough examination does not know his business.

THE ROLE OF THE DISTRICT NURSE AS A FACTOR IN THE CAMPAIGN FOR THE PREVENTION OF VENEREAL DISEASES.

*By Henri L. Pache, M. D. Director Venereal Disease Department,
Vermont State Board of Health.*

A fair illustration of the past and present attitude of the people toward venereal disease control appears in a cartoon published in a recent issue of the Social Hygiene Bulletin. It portrays a person with fingers in his ears and eyes shut, refusing to hear or see, and underneath is the date 1820. On the other side another person is looking thoughtfully at a large sign reading "Venereal diseases must go". Underneath 1920. Below the question, "Which period are you living in"?

In your case the question changes to "What period are you working in"? Are you thoroughly familiar with this phase of the work? Are you ready to answer any question asked of you by the young girl, the woman, the mother, the teacher, or any one who on account of your position may expect information and advice. Pamphlets giving this information will be sent you on request by the State Board of Health.

With the wonderful advance made in the field of Public Health it would be a case of the missing link, should we not add to our program syphilis and gonorrhea. You have been told of the ravages of other diseases, you have been given figures which have brought to the foreground the diseases in question, but have you ever been told or have you ever read the statement of Osler, that 250,000 people in the United States die every year, directly or indirectly, from the effects of syphilis. Tuberculosis kills 150,000 yearly. Now compare what has been done toward the control of these two great plagues. Many have refused to admit these figures. The longer I remain in this work, the more I believe that they are correct. In our own State during the year 1919 to 1920, 186 cases of tuberculosis were reported against 247 cases of syphilis.

As we travel through the country we are warned at every turn of dangerous curves and dangerous hills, the lives of many are saved yearly by these silent advisers, but again a case of "the missing link", we have allowed the youth of the country, our boys and our girls to start on the road of life, ignorant of social hygiene, relation of the sexes and venereal diseases, so that many times out of the darkness, out the night of disasters and torture, we have heard that cry: "Why were we not told"?

Previous to the great war, a few pioneers in this work had the moral courage to advocate means and measures to stamp out venereal diseases, but only a few heard their warnings. Only after the veil covering the real situation was lifted, by the examination of men for service in the army, did the people of the United States realize the appalling existing condition. Then through the combined activities of the Army and the Public Health Service, a campaign was started. The passage of the Chamberlain-Kahn bill for an appropriation of \$4,000,000 to be divided among States according to their population, made it possible to enact laws, establish clinics, distribute literature, and begin an extensive campaign of education. So that now, the once tabooed subject of venereal diseases is discussed in the press, in the churches, in women's

clubs, in schools, industrial companies and most important of all by fathers and mothers with their children.

The result of your work in your district will be exactly what you make it. Yours will be the privilege of accepting opportunities as they present themselves to do good or to let them pass unnoticed.

Your amount of knowledge and its application will be in direct relation to results obtained. Good advice, knowledge properly imparted, detection of cases reported to your chief or to physicians will bring up the credit side of your ledger with a large balance.

Syphilis can be cured in its early stages, its course arrested in its later one. Therefore the importance of early detection. Up to the present time a large number of cases have not been detected or reported owing to several factors, the main one being, the stigma attached to it on account of its most common means of transmission, illicit intercourse. However, the causes of innocent syphilis are many when we consider the congenital cases, the professional cases among doctors, nurses, midwives and dentists, infection by kissing, by glasses, surgical instruments, etc., so that it seems unjust to classify syphilis and gonorrhea as venereal diseases. Had the same stigma been attached to diphtheria, scarlet fever and others you can readily see how hampered their control would have been. So our work, must be to teach the modes and dangers of infection first, and second, the importance of early and expert treatment.

What applies to syphilis applies to gonorrhea also. Ophthalmia of the new born is an innocent infection, as well as the venereal disease of the bride who is infected by the husband who thought himself cured. Most of gynecologic operations performed on the tubes and ovaries are of gonorrheal origin.

In you work you will teach first, methods of education, so that the mothers of to-morrow unlike the mothers of yesterday, will be able to teach sex matters to the coming generation, in the ideal place which is the home. Second, you will be ready to give advice, when called upon to do so in regard to infections and their dangers. Third, to advise early and expert treatment to the infected. Fourth, to detect and report foci of infection, who through ignorance or moral defectiveness are a danger to your community. Fifth, when talking with the young, boys especially, do not forget to appeal to their developing sense of patriotism. Teach them to know what our flag stands for, the glory of its red, the purity of its white, the loyalty of its field of blue, and teach them to so live that no act of theirs will even dim the silvery splendor of its stars.

IS IT HIS WAY?

A case of scarlet fever is reported by a physician. He quarantines the case and the health officer issues instructions. The quarantine notice tells the family that all contacts must be kept on the premises, away from outsiders and away from the patient. They promise to comply with the regulations.

Five days later the case is visited by the health officer. He finds the patient downstairs on a couch. Several of the younger brothers and sisters huddling around him. Two larger boys are out on the street playing with three other boys. The mother just returned from the corner grocery store, and altogether conditions are found quite contrary to the health officer's orders. He endeavors to show them that they are doing wrong. He is met with the

rebuff that "I don't think the child has scarlet fever" and "I am not afraid of it". Arguments are futile. In a few days, there are two more cases in the family, and one next door. One of the children die. The minister calls to pay his respects. He offers a prayer. One sentence lingers. "The Lord has seen fit to remove this child from our midst. The Lord giveth and He taketh away". The child is buried. An epidemic has been started and there will be other deaths and other burials. Is it the Lord's way?

Did the family think that by not carrying out the orders they were hurting the physician, health officer, minister or undertaker? Whom were they damaging? No one but themselves. It made more work for the physician, the druggist, the minister, the undertaker and a host of others. They were hurting only themselves but they could not see it.

DEATH RATES IN VERMONT.

Compared with the Registration Area of the United States.

The Census Bureau's annual bulletin on mortality statistics for the death registration area in continental United States shows 1,096,436 deaths as having occurred in 1919. This represents a rate of 1,287.7 per 100,000 population or 12.9 per 1,000 population and is the lowest rate recorded in any year since the establishment of the registration area. The rate of 1919 is in striking contrast with the unusually high rate for 1918 due to the pandemic of influenza.

The vital statistics in Vermont for the year 1919 show the total number of deaths to have been 5,110 which gives a rate per 100,000 population of 1,435.6 or 14.3 per 1,000 population. This is also much lower than the rate in 1918 due to the same cause.

The following table shows, for the death registration area in continental United States in 1919, the total number of deaths and the death rate by certain leading causes compared with the total number of deaths and death rate in Vermont:

DEATH RATE

	UNITED STATES		VERMONT	
	<i>Number of Deaths</i>	<i>Rate per 100,000 Population</i>	<i>Number of Deaths</i>	<i>Rate per 100,000 Population</i>
All Causes (1)	1,096,436	1,287.7	5,110	1,435.6
Organic diseases of the heart,	111,579	131.0	726	203.9
Tuberculosis (all forms),	106,985	125.6	324	91.0
Tuberculosis of the lungs, (2)	94,772	111.3	269	75.5
Tuberculous Meningitis,	5,175	6.1	30	8.4
Other forms of tuberculosis	7,038	8.3	25	7.02
Pneumonia (all forms),	105,213	123.6	363	101.9
Influenza,	84,113	98.8	410	115.1
Acute nephritis and Brights disease,	75,005	88.1	365	102.5
Cancer and other malignant tumors,	68,551	80.5	407	114.3
External causes (suicide excepted),	67,654	79.5	233	65.4
Cerebral hemorrhage and softening,	66,918	78.6	513	144.1
Congenital debility and malfor- mations,	56,714	66.6	315	88.4
Diarrhea and enteritis (under 2 years),	37,635	44.2	102	28.6
Diabetes,	12,683	14.9	79	22.1
Diphtheria and croup,	12,551	14.7	15	4.2
Bronchitis,	10,913	12.8	78	22.1
Appendicitis and typhlitis	10,029	11.8	42	11.7
Suicide,	9,732	11.4	45	12.6
Puerperal affections, other than puerperal septicemia,	9,538	11.2	41	11.5
Respiratory diseases, other than pneumonia and bronchitis,	8,865	10.4	23	6.4
Hernia and intestinal obstruction,	8,853	10.4	45	12.6
Typhoid fever,	7,860	9.2	12	3.3
Cirrhosis of liver,	6,704	7.9	13	3.6
Meningitis,	5,508	6.5	22	6.1
Puerperal septicemia,	4,950	5.8	6	1.6
Whooping Cough,	4,714	5.5	30	8.4
Rheumatism,	3,907	4.6	26	7.3
Measles,	3,296	3.9	16	4.5
Malaria,	3,275	3.8	1	0.2
Scarlet fever,	2,382	2.8	9	2.4
Erysipelas,	2,186	2.6	9	2.4
Smallpox,	358	0.4	0	0
All other defined causes,	172,161	202.2	860	241.6
Unknown and ill-defined causes,	15,603	18.3	0	0
1 Exclusive of stillbirths,				
2 Includes acute military tuber- culosis.				

BULLETIN

OF THE

VERMONT STATE BOARD OF HEALTH.

Vol. XX, No. 5 Issued Quarterly at Montpelier, Vermont

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REPORT OF THE LABORATORY OF HYGIENE.

The figures below represent the analytical work performed in the Laboratory of Hygiene during the months of May, June, July, August, September and October, 1920.

	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>
Cultures from the throat examined for diphtheria bacilli:						
Positive.....	20	12	18	12	44	197
Negative.....	305	127	176	90	161	1383
Total.....	325	139	194	102	205	1580
Specimens of blood examined for the Widal reaction:						
Positive.....	6	5	9	11	24	22
Negative.....	20	44	54	67	108	91
Total.....	26	49	63	78	132	113
Specimens of blood examined for malarial parasites:						
Positive.....	0	1	0	1	1	0
Negative.....	0	0	3	1	3	1
Total.....	0	1	3	2	4	1
Specimens of sputum examined for tubercle bacilli:						
Positive.....	22	24	22	28	18	13
Negative.....	161	152	150	119	105	116
Total.....	183	176	172	147	123	129
Specimens of blood examined for the Wasserman reaction:						
Positive.....	16	18	26	26	24	43
Negative.....	120	128	127	125	104	158
Total.....	136	146	153	151	128	201

	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>
Specimens of urethral discharge examined for gonococci:						
Positive.....	13	20	26	27	25	33
Negative.....	40	34	52	57	44	42
Total.....	53	54	78	84	69	75
Specimens of sputa examined for pneumonia type:						
Type 1.....	0	0	0	0	0	0
Type 2.....	0	0	0	0	0	0
Type 3.....	0	0	0	0	0	0
Type 4.....	0	0	0	0	0	0
Total.....	0	0	0	0	0	0
Specimens of blood examined for contagious abortion reaction:						
Positive.....	0	0	0	0	0	0
Negative.....	0	0	0	0	0	0
Total.....	0	0	0	0	0	0
Specimens of blood examined for white diarrhoea of fowls:						
Positive.....	0	0	0	0	0	0
Negative.....	0	0	0	0	0	0
Total.....	0	0	0	0	0	0
Specimens of water examined for potability:						
Normal.....	10	19	22	33	45	31
Showing present pollution.....	8	14	20	26	27	18
Showing past pollution.....	2	10	14	15	11	18
Total.....	20	43	56	74	83	67
Specimens of milk (detail table follows) examined for compliance with legal standards:						
Above standard.....	28	36	30	20	3	44
Below standard.....	57	21	41	20	10	48
Total.....	85	57	71	40	13	92
Specimens of food products (detail table follows) examined for compliance with legal standards:						
Legal.....	17	26	14	6	7	32
Adulterated.....	3	13	3	5	4	1
Total.....	20	39	17	11	11	33

	May	June	July	Aug.	Sept.	Oct.
Specimens of drugs (detail table following) examined for compliance with legal standards:						
Legal	13	2	13	7	25	12
Illegal	5	2	0	0	2	3
Total	18	4	13	7	27	15
Examinations made for the Department of Justice:						
Autopsies (medico-legal)	2	1	2	1	5	3
Miscellaneous examinations	1	15	29	6	14	14
Total	3	16	31	7	19	17
Autopsies to complete death certificates where no foul play was suspected:						
Autopsies	7	4	1	2	1	3
Total	7	4	1	2	1	3
Miscellaneous examinations:						
Positive	22	15	38	39	50	37
Negative	74	79	75	104	93	130
Total	96	94	113	143	143	167
Grand Total	972	822	965	848	958	2493

EXAMINATIONS OF MARKET MILK FOR MAY, JUNE, JULY,
AUGUST, SEPTEMBER, OCTOBER, 1920.

BENNINGTON:

Standard or Above.

M. H. Myers (6)	Fritz Horst (4)
L. A. Briggs (2)	Gene Moon (2)
Bennington Candy Kitchen (2)	George Smith
G. L. Harwood (3)	Hewitt Bros. (2)
L. H. McCoy	Bernice Cole
J. C. Colgate	H. M. Russell
Bennington Candy Kitchen	Alex Young
Wheeler Rice	N. W. Morgan
Vermont Soldiers' Home	George Moore
S. Van Santvoord	Fred Foster
H. Rice	H. J. Beagle

Below Standard.

Houghton Rice	P. J. Kenney
John Scully (2)	Fritz Horst
Bert Sanders (2)	D. E. Bushnell (2)
Phil Jacobs (4)	S. Van Santvoord (3)
L. J. McCoy	Nap. Bountin (2)

H. Fay
 A. H. Harbour (2)
 George Harmon
 W. L. Gokay
 Fred Foster
 J. C. Colgate (3)
 S. Crosier
 Fred Huntington
 Vermont Soldiers' Home
 Will Morgan
 Gene Moore

H. W. Morgan
 Hewitt Bros. (3)
 F. D. Eaton (2)
 Charles Sanders (2)
 F. B. Harrington
 H. J. Beagle
 G. H. Moore
 L. A. Briggs
 M. M. McCoy
 H. M. Russell

MANCHESTER:

Standard or Above.

E. A. Wilcox
 George Long

Chris. Tousley
 Jas. Fisher

Below Standard.

R. D. Brown

E. A. Wilcox

DORSET:

Standard or Above.

Frank Reed

G. F. Griffith

READSBORO:

Below Standard.

John A. Carpenter

BURLINGTON:

Standard or Above.

Wm. Suckstoff (2)
 L. E. Brigham (2)
 E. M. Hoag (2)
 L. H. Lafayette (2)
 F. L. Murray
 Ritchie's Creamery
 J. V. Kieslich
 E. S. Brooks (2)
 W. W. Aldrich
 O. E. Barber (2)

A. R. White
 C. E. Gravel
 John Crowley (2)
 Wm. McGrath (2)
 Mrs. M. Maynard
 C. E. Demper (2)
 A. P. Bernard
 Appletree Point Farm
 J. A. St. John

Below Standard.

Appletree Point Farm (3)
 L. E. Brigham (3)
 Burlington Lunch (4)
 F. L. Murray (3)
 Boston Lunch (4)
 J. A. St. John (3)
 C. E. Demper (2)
 Wm. Suckstoff (2)
 O. E. Ryan
 John Crowley
 C. M. Kontos
 L. Millstone

O. E. Barber
 I. Rosenberg
 L. H. Lafayette
 A. P. Beeman
 People's Cash Store
 W. M. McGrath (3)
 W. W. Aldrich (5)
 E. M. Hoag (2)
 Star Restaurant (4)
 G. B. Hosmer (4)
 University Farm (2)
 Champlain Restaurant (3)

White's P. M. P. Co. (4)	A. P. Bernard
B. Co-op. Milk P. Co. (9)	Soule & White
L. E. Genereaux (4)	M. A. Ryan (2)
New Sherwood Coffee Room (4)	E. Roy
J. V. Kieslich (2)	H. J. Mercure
Cometa Lunch	Bostwick Bros. (4)
COLCHESTER:	<i>Standard or Above.</i>
Ed. Roy	Jos. Gamelin
	<i>Below Standard.</i>
H. J. Mercure	T. Villemaire
J. Parre	
ST. ALBANS:	<i>Standard or Above.</i>
Bell's Cafe	R. L. Brault
E. R. Wells	A. Holmes
James Peters	F. Blouin
	<i>Below Standard.</i>
A. Guay	Rocheleau Bros.
Lipper's Store	G. Robinson
Depot Restaurant	F. Nardine
F. C. Wilcox	Carl Bombard
A. S. Musgrove	H. J. Baker
Albert Peters	Sam Major
Henry Peters	E. H. Brooks
RUTLAND:	<i>Standard or Above.</i>
Cramton & Lobdell	John Sharrow
J. J. Dansro	R. Sharpe
J. T. Shelvey	R. Duffy
A. A. Houston	Henry Lester
F. A. Quigley	Mike Mulcahey
O. S. Sampson	
	<i>Below Standard.</i>
C. N. Lee & Son	C. B. Morris
Fred Knight	F. N. Pelkey
Louis Avery	H. M. Chatterton
Maple Grove Creamery	G. B. Waite
D. Dickinson	Wood's Grocery
G. A. Davis	C. I. Kimball
F. L. Olney	H. J. Novak
Ray Russell	G. E. Wood
M. M. Kierstead	Arnold Rowe
WEST RUTLAND:	<i>Standard or Above.</i>
Peter Carter	
WALLINGFORD:	<i>Standard or Above.</i>
Cary & Moore	
	<i>Below Standard.</i>
W. C. Davis	

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING MAY, JUNE AND JULY, 1920

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination					Remarks	Total
						Under "Food and Drug Law"			Domestic Product Submitted			
						Legal	Adul-terated	Mis-branded	Whole-some	Unwhole-some		
Butter.....	13570B	May 17			Addison Co. Middlebury....	1						
Maple Walnut Ice Cream.....	14916B	June 23	Concord Candy Kitchen....	Candy Kitchen....	Middlebury....	1						
French Vanilla Ice Cream.....	14903B	June 23	T. Neville Estate....	Coon Ice Cream Co....	Vergennes....		1				12% butter fat....	
Addison Co.	Total....					2	1					3
Ice Cream.....	13200B	May 5	W. L. Gokay....		Bennington Co.	1						
Ice Cream.....	13201B	May 5	G. L. Harwood....		Bennington....		1				12% butter fat....	
Ice Cream.....	13202B	May 5	C. Savas....		Bennington....	1						
Ice Cream.....	13203B	May 5	Bennington Candy Kitchen....		Bennington....	1						
Maple Syrup.....	12954B	April 29	L. J. Wilcox....	L. J. Wilcox....	Manchester....							
Maple Syrup.....	12955B	April 29	J. F. Kanard....	J. F. Kanard....	Manchester....							
Maple Syrup.....	12956B	April 29	C. L. Randall....	C. L. Randall....	Manchester....							
Maple Syrup.....	12957B	April 29	G. J. Cullenan & Co.	Mrs. Bentley....	Manchester....							
Fowler's Solution.....	12952B	April 30	W. L. Gokay....		Bennington....	1						
Spts. Camphor.....	12986B	April 30	W. L. Gokay....		Bennington....	1						
Tinct. Iodine.....	12983B	April 30	W. L. Gokay....		Bennington....	1						
Sweet Spts. Nitre.....	12984B	April 30	W. L. Gokay....		Bennington....	1						
Aspirin.....	12988B	April 30	W. L. Gokay....		Bennington....							
Ess. Anise.....	12983B	April 30	W. L. Gokay....		Bennington....		1				Sub standard.	
Ess. Peppermint.....	12987B	April 30	W. L. Gokay....		Bennington....		1				Sub standard.	
Ess. Peppermint.....	12979B	April 30	Quinlan's Phar....		Bennington....	1						
Spts. Camphor.....	12978B	April 30	Quinlan's Phar....		Bennington....	1						
Tinct. Iodine.....	12981B	April 30	Quinlan's Phar....		Bennington....	1						

[illegible]

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING MAY, JUNE AND JULY, 1920

Material	Laboratory Number	Date of Receipt	Source of Sample		Result of Examination						Remarks	Total	
					Under "Food and Drug Law,"				Domestic Product Submitted				
					Legal	Adul- terated	Mis- branded	Whole- some	Unwhole- some				
										County or Town			Manufacturer or Wholesaler
Butter.....	14470B	June 10						Franklin Co.	1				
Ice Cream.....	14739B	June 17	A. Constantine.....		Coon Ice Cr. Co.....		Bakersfield.....	1					
Ice Cream.....	14740B	June 17	A. Holmes.....		A. Holmes.....		St. Albans.....	1					
Ice Cream.....	14741B	June 17	Alexander's Phar.....		Alexander's Phar.....		St. Albans.....	1					
Ice Cream.....	14742B	June 17	Conte & Co.....		Conte & Co.....		St. Albans.....	1					
Ice Cream.....	14743B	June 17	G. Lapan.....		Kent Ice Cr. Co.....		St. Albans.....	1					
Ice Cream.....	15674B	July 13	H. McGregg.....		H. M. McGregg.....		St. Albans.....	1				10% butter fat, much dirt	
Franklin Co.....	Total..							6	1				7
Ice Cream.....	13042B	May 1	F. Anthony & Son...				Rutland Co.....	1					
Chocolate Ice Cream	13343B	May 12					Poultney.....	1				12.25% fat...	
Butter.....	13471B	May 13					Rutland.....	1				Oleomargarine.	
Honor Brand													
Evap. Milk.....	12704B	April 22	T. P. Mangan.....		Highland Milk Condensing Co....		Rutland.....	1					
Every day Brand					John Wilder								
Evap. Milk.....	12705B	April 22	T. P. Mangan.....		Evap. Milk Co....		Rutland.....	1					
Seal of Troy													
Tomato Catsup...	12700B	April 22	T. P. Mangan.....		Sherry Co.....		Rutland.....	1					
Cape May Brand													
Tomato Catsup...	12701B	April 22	T. P. Mangan.....		W. C. Brate.....		Rutland.....	1					
Hartshorn Pure													
Ext. Lemon.....	12703B	April 22	T. P. Mangan.....		E. Hartshorn & Son.		Rutland.....	1					
Cider Vinegar.....	12702B	April 22	T. P. Mangan.....		W. C. Brate.....		Rutland.....	1					
Meat.....	14829B	June 21										1	
Vanilla Ice Cream...	14914B	June 22	Arthur Rafter.....		Arthur Rafter.....		Rutland.....						
Strawberry Ice Cr...	14923B	June 22	E. H. Sloane.....		Kent Ice Cr. Co....		Pawlet.....	1					
							Danby.....	1					

French Vanilla Ice Cream.....	14901B	June 23	W. Rutland Fruit Market.....	Howe Ice Cream Co.....	W. Rutland.....	1	13% butter fat.....	.....
Vanilla Ice Cream.....	14915B	June 22	Green Bros.....	Trojan Ice Cr. Co.....	Fair Haven.....	1	12% butter fat.....	.....
Chocolate Ice Cream.....	14909B	June 22	Green Bros.....	Trojan Ice Cr. Co.....	Fair Haven.....	1	11% butter fat.....	.....
Pineapple Ice Cream.....	14908B	June 22	A. Durl.....	Albany Ice Cr. Co.....	Fair Haven.....	1	12% butter fat.....	.....
Cherry Ice Cream.....	14907B	June 22	A. Durl.....	Albany Ice Cr. Co.....	Pittsford.....	1	12% butter fat.....	.....
Chocolate Ice Cream.....	14905B	June 23	W. F. Flemming.....	W. F. Flemming.....	Pittsford.....	1	12% butter fat.....	.....
Vanilla Ice Cream.....	14904B	June 23	W. F. Flemming.....	W. F. Flemming.....	Pittsford.....	1	7% butter fat.....	.....
Vanilla Ice Cream.....	14917B	June 22	Wheeler Candy Kit.....	Inter. Ice Cr. Co.....	Poultney.....	1	12% butter fat.....	.....
Maple Ice Cream.....	14912B	June 22	Wheeler Candy Kit.....	Inter. Ice Cr. Co.....	Poultney.....	1	12% butter fat.....	.....
Chocolate Ice Cream.....	14906B	June 22	Wheeler Candy Kit.....	Inter. Ice Cr. Co.....	Poultney.....	1	12% butter fat.....	.....
Strawberry Ice Cr.....	14910B	June 22	F. Bertolino.....	F. Bertolino.....	Poultney.....	1	12% butter fat.....	.....
Chocolate Ice Cream.....	14913B	June 22	O. W. McShane.....	Trojan Ice Cr. Co.....	Poultney.....	1	12% butter fat.....	.....
Vanilla Ice Cream.....	14918B	June 22	O. W. McShane.....	Trojan Ice Cr. Co.....	Poultney.....	1	12% butter fat.....	.....
Chocolate Ice Cream.....	14922B	June 23	Rolle's Phar.....	Rolle's Phar.....	Brandon.....	1	12% butter fat.....	.....
Maple Walnut Ice Cream.....	14921B	June 22	Wallingford Cash.....	Irving Kirk.....	Wallingford.....	1	10% butter fat.....	.....
Vanilla Ice Cream.....	14902B	June 22	Irving Kirk.....	Irving Kirk.....	S. Wallingford.....	1	3.1% ethyl nitrite.....	.....
Spts Eth. Nitre.....	14966B	June 22	Wallingford Cs. St.....	E. Hartshorn & Sons.....	Danby.....	1	2.7% ethyl nitrite.....	.....
Spts Eth. Nitre.....	14962B	June 22	N. C. Nichols.....	E. Hartshorn & Sons.....	Brandon.....	1	.....	.....
Spts Eth. Nitre.....	14953B	June 23	Rolle's Phar.....	E. Hartshorn & Sons.....	Brandon.....	1	.....	.....
Spts Eth. Nitre.....	14957B	June 22	Hyde's Phar.....	E. Hartshorn & Sons.....	Brandon.....	1	.....	.....
Wheat Flour.....	15246B	July 2	Hyde's Phar.....	E. Hartshorn & Sons.....	Pittsford.....	1	.....	.....
Spts. Camphor.....	14959B	June 22	N. C. Nichols.....	J. L. Thompson Sons Co.....	Danby.....	1	.....	.....
Camph. Oil.....	14960B	June 22	N. C. Nichols.....	J. L. Thompson Sons Co.....	Danby.....	1	.....	.....
Tinct. Iodine.....	14960B	June 22	N. C. Nichols.....	J. L. Thompson Sons Co.....	Danby.....	1	.....	.....
Fowler's Sol.....	14903B	June 22	Wallingford Cs. St.....	Sons Co.....	Danby.....	1	.....	.....
Spts. Camphor.....	14964B	June 22	Wallingford Cs. St.....	Sons Co.....	Wallingford.....	1	.....	.....
Tinct. Iodine.....	14965B	June 22	Wallingford Cs. St.....	Sons Co.....	Wallingford.....	1	.....	.....
Asprin.....	14958B	June 22	Hyde Phar.....	United Drug Co.....	Brandon.....	1	.....	.....
Ess. Peppermint.....	14955B	June 22	Hyde Phar.....	United Drug Co.....	Brandon.....	1	.....	.....
Tinct. Iodine.....	14956B	June 22	Hyde Phar.....	United Drug Co.....	Brandon.....	1	.....	.....
Tinct. Iodine.....	14954B	June 22	Hyde Phar.....	United Drug Co.....	Brandon.....	1	.....	.....
Ess. Anise.....	14952B	June 22	Rolle.....	United Drug Co.....	Brandon.....	1	.....	.....
Chocolate Ice Cream.....	15775B	July 16	Rolle.....	United Drug Co.....	Poultney.....	1	12½% fat.....	.....
Rutland Co.....	Total..					31	1	46
Salt Pork.....	13797B	May 24		Washington Co.	Washington Co.	1	.....	.....
Washington Co.....	Total..			Moretown..	Moretown..	1	.....	1

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING MAY, JUNE AND JULY, 1920

Material	Laboratory Number	Date of Receipt	Source of Sample			Result of Examination						Remarks	Total
						Under "Food and Drug Law"				Domestic Product Submitted			
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Legal	Adul- terated	Mis- branded	Whole- some	Unwhole- some			
Oil Wintergreen.....	14950B	June 24			Windsor Co.	1							
Cream of tartar.....	16012B	July 22			Springfield. Woodstock.....	1							
Windsor Co.....	Total..					2							2
Grand Total.....						81	25		4	1			111

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING AUGUST, SEPTEMBER AND OCTOBER, 1920

Material	Laboratory Number	Date of Receipt	Source of Sample			Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Under "Food and Drug Law"						
						Legal	Adul- terated	Mis- branded	Whole- some	Domestic Product Submitted		
Cider.....	17994B	Sept. 16			Addison Co.		1					
Cherry Ice Cream.....	18571B	Oct. 2	Concord Candy Kit.	Kent Ice Cream Co.	Bridport.	1					Alcohol 5%.	
French Vanilla Ice Cream.....	1859B	Oct. 2	Lebaus Restaurant.	Kent Ice Cream Co.	Vergennes.....	1						
Sultana Brand Tomatoes.....	18587B	Oct. 2	Atlantic & Pacific Tea Co.....		Middlebury.....	1						
Baby Brand Tomatoes.....	18588B	Oct. 2	Atlantic & Pacific Tea Co.....		Middlebury.....	1						
Big R Brand Tomatoes.....	18589B	Oct. 2	Atlantic & Pacific Tea Co.....		Middlebury.....	1						
Grandmothers A & P Pure Honey.....	18590B	Oct. 2	Atlantic & Pacific Tea Co.....		Middlebury.....	1						
Dupont Brand Sardines.....	18591B	Oct. 2	Atlantic & Pacific Tea Co.....		Middlebury.....	1						
Addison Co.....	Total..					7	1					8
Ice Cream.....	16402B	Aug. 2	A. Chapney.....	Hostler's Ice Cr. Co.	Bennington Co.		1				7% fat.....	
Ice Cream.....	18729B	Oct. 6	Bennington Candy Shop.....		No. Pownal.....							
Ice Cream.....	18730B	Oct. 6	Bennington Candy Kitchen.....		Bennington.....	1						
Ice Cream.....	18728B	Oct. 6	G. L. Harwood.....		Bennington.....	1						
Ice Cream.....	18731B	Oct. 6	D. A. Ward.....		Bennington.....	1						
Mercury Iodide.....	18447B	Oct. 13	D. A. Ward.....		Arlington.....	1						
Bennington Co.....	Total..					5	1					6

7% fat.....

Alcohol 5%.....

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING AUGUST, SEPTEMBER AND OCTOBER, 1920

Material	Laboratory Number	Date of Receipt	Source of Sample		County or Town	Result of Examination				Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler		Under "Food and Drug Law"		Domestic Product Submitted			
						Legal	Adul-terated	Mis-branded	Whol-some			Unwhol-some
Vanilla Ice Cream...	16970B	Aug. 18	Mary Assid.	Coon Ice Cr. Co.	Chittenden Co.	1					
Maple Walnut Ice Cream...	16971B	Aug. 18	Lines Bros.	Lines Bros.	Burlington...	1					
Strawberry Ice Cr...	16972B	Aug. 18	Lines Bros.	Lines Bros.	Burlington...	1					
Aspirin Tablets...	16983B	Aug. 18	Campbell & Daniels	McK & R.	Burlington...	1					
Spts. Anise...	16981B	Aug. 18	Campbell & Daniels		Burlington...	1					
Spts. Peppermint...	16982B	Aug. 18	Campbell & Daniels		Burlington...	1					
Tartaric Acid...	16973B	Aug. 18	Vermont Phar.		Burlington...	1					
Rochelle Salts...	16973B	Aug. 18	Vermont Phar.		Burlington...	1					
Tinct. Iodine...	16973B	Aug. 18	Eugene Gosselin		Burlington...	1					
Ess. Peppermint...	16977B	Aug. 18	Eugene Gosselin		Burlington...	1					
Delta Br. Sardines...	16975B	Aug. 18	C. A. Barber & Co.		Burlington...	1					
Butter...	18155B	Sept. 22			Burlington...	1				Contains salt.	
Cane sugar...	18430B	Sept. 29			Burlington...	1					
Chittenden Co.	Total...				Total...	12	1				13
Sweet Spts Nitre... 1	7841B	Sept. 11	Smith's Phar.	John L. Thompson Sons Co.	St. Albans...	1				2% ethyl nitrite.	
Spts. Camphor...	17840B	Sept. 11	Smith's Phar.	U. D. Co.	St. Albans...	1					
Camp. Oil...	17839B	Sept. 11	Smith's Phar.	U. D. Co.	St. Albans...	1					
Tinct. Iodine...	17842B	Sept. 11	Smith's Phar.	Gibson Snow	St. Albans...	1					
Glycerin...	17847B	Sept. 11	Alexander's Phar.		St. Albans...	1					
Sweet Spts Nitre...	17845B	Sept. 11	Alexander's Phar.		St. Albans...	1				2.2% ethyl nitrite.	
Castor Oil...	17845B	Sept. 11	Alexander's Phar.		St. Albans...	1					
Ess. Peppermint...	17852B	Sept. 11	Alexander's Phar.		St. Albans...	1					
Spts. Camphor...	17850B	Sept. 11	Alexander's Phar.		St. Albans...	1					
Tinct. Iodine...	17851B	Sept. 11	Alexander's Phar.		St. Albans...	1					

[illegible]

SPECIMENS OF FOOD AND DRUGS EXAMINED AT THE LABORATORY OF HYGIENE DURING AUGUST, SEPTEMBER AND OCTOBER, 1920

Material	Laboratory Number	Date of Receipt	Source of Sample			Result of Examination					Remarks	Total
			Retailer Obtained from	Manufacturer or Wholesaler	County or Town	Under "Food and Drug Law"						
						Legal	Adul- terated	Mis- branded	Domestic Product Submitted			
									Whole- some	Unwhole- some		
Coffee Ice Cream...	16401B	Aug.	2 Thompson...	Hosler's Ice Cr. Co.	Rutland Co.		1				8.75% fat...	
Chocolate Ice Cream	18585B	Oct.	2 Wheeler's Can. Kit.	Inter. Ice Cr. Co.	Pawlet.	1						
Chocolate Ice Cream	18576B	Oct.	2 McShane's Phar.	Trojan Ice Cr. Co.	Poultney.	1						
Strawberry Ice Cr...	18583B	Oct.	2 McShane's Phar.	Trojan Ice Cr. Co.	Poultney.	1						
Vanilla Ice Cream...	18579B	Oct.	2 McShane's Phar.	Trojan Ice Cr. Co.	Poultney.	1						
Vanilla Ice Cream...	18575B	Oct.	2 Wheeler's Can. Kit.	Inter. Ice Cr. Co.	Poultney.	1						
Chocolate Ice Cream	18574B	Oct.	2 M. F. Fleming	M. F. Fleming.	Pittsford.	1						
Vanilla Ice Cream...	18582B	Oct.	2 Adams Phar.	Howe Ice Cr. Co.	F. Haven.	1						
Cherry Ice Cream...	18581B	Oct.	2 J. Tomassi	Coon Ice Cr. Co.	F. Haven.	1						
Caramel Ice Cream...	18577B	Oct.	2 A. Calvi	A. Calvi	F. Haven.	1						
Vanilla Ice Cream...	18573B	Oct.	2 Green Bros.	Trojan Ice Cr. Co.	F. Haven.	1						
Chocolate Ice Cream	18570B	Oct.	2 Green Bros.	Trojan Ice Cr. Co.	F. Haven.	1						
Maple Walnut Ice Cream	18572B	Oct.	2 J. Bottamini	Kent Ice Cr. Co.	Brandon.	1						
Banana Ice Cream...	18584B	Oct.	2 F. Bruzza	F. Bruzza	Rutland.	1						
Vanilla Ice Cream...	18580B	Oct.	2 Anthony & Son.	Anthony & Son.	Rutland.	1						
Chocolate Ice Cream	18578B	Oct.	2 F. Bruzza	F. Bruzza	Rutland.	1						
Extract Orange...	18009B	Oct.	2 E. N. Northrop	E. N. Northrop	Castleton.	1	1				Below standard.	
Spts Camphor...	18008B	Oct.	2 E. N. Northrop	E. N. Northrop	Castleton.							
Success Ess. Pepper- mint.	18607B	Oct.	2 F. B. Dwyer		W. Rutland.	1						
Hudson Ess. Lemon	18607B	Oct.	2 F. B. Dwyer	W. Rutland	W. Rutland.	1						
Success Spts. Tur- pentine.	18606B	Oct.	2 F. B. Dwyer		W. Rutland.	1						
E. N. Northrop's Camp. Oil.	18596B	Oct.	2 L. N. Coon		Castleton.	1						
E. N. Northrop's Sweet Oil.	18595B	Oct.	2 L. N. Coon		Castleton.		1				Cotton Seed Oil	

Foss' Camph. Oil.....	18594B	Oct.	2 I. N. Coon.....	J. L. Thompson.....	Castleton.....	1				
Ess. Peppermint.....	18601B	Oct.	2 Ray & Dennison.....	J. L. Thompson.....	Pittsford.....	1				
Spts. Camphor.....	18602B	Oct.	2 Ray & Dennison.....	J. L. Thompson.....	Pittsford.....	1				
Camph. Oil.....	18603B	Oct.	2 Ray & Dennison.....	J. L. Thompson.....	Pittsford.....	1				
Dilute Ex. Keabs Lemon Essence.....	18604B	Oct.	2 F. B. Dwyer.....	Public Service Drug Co. Inc.....	W. Rutland.....		1			Trace of oil.....
Dunbars Old Fashioned Molasses.....	18592B	Oct.	2 I. N. Coon.....		Castleton.....	1				
Ber Rabbit Brand Molasses.....	18593B	Oct.	2 I. N. Coon.....		Castleton.....	1				
Ambassador Brand Sardines.....	18597B	Oct.	2 Preston & Son.....		Fair Haven.....	1				
Gen Custer Brand Catsup.....	18599B	Oct.	2 Preston & Son.....		Fair Haven.....	1				
New Era Brand Apple Grape Jelly.....	18600B	Oct.	2 Preston & Son.....		Fair Haven.....	1				
Dime Brand Condensed Milk.....	18598B	Oct.	2 Preston & Son.....		Fair Haven.....	1				
Total.....						30	3	1		34
Rutland Co.....										
Maple Sugar.....	17058B	Aug. 19			Washington Co	1				
Wine.....	18464B	Oct. 1			Marshfield. Barre.....		1			Lead present.....
Washington Co.....	Total.....					1	1			2
Sugar.....	16759B	Aug. 12			Windham Co., Bellows Falls.....			1		2.8% alcohol.....
Beer.....	18309B	Sept. 25			Brattleboro.....		1			
Windham Co.....	Total.....						1		1	2
Codienne Sulph Gr. ½.....					Windser Co.....					
Morph. Sulph. Gr. ¼.....					Ludlow.....	1				
Windser Co.....	Total.....				Ludlow.....	1				
Grand Total.....						2				2
						88	15	1	1	105

MEDICO-LEGAL CASES.

SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM MAY 1 TO AUGUST 1, 1920.

Lab- oratory Number	Date Rec'd	Town	Material	Examined for	Result
15794B	July 15	<i>Addison County</i> Orwell.....	Autopsy.....	Cause of death.....	Fatty degeneration of heart.
16267B	July 28		Autopsy.....	Cause of death.....	Acute dilatation.....
14369B	June 6	<i>Bennington County</i> Bennington.....	Tobacco.....	Poison.....	Acute cardiac dilatation.....
14774B	June 18		Strychnine.....	Evidence.....	Exhaustion.....
14846B	June 21	<i>Chittenden County</i> Burlington.....	Earth.....	Poison.....	Negative.....
14837B	June 21		Cow's stomach.....	Poison.....	Arsenic.....
13292B	May 8	<i>Burlington</i> Burlington.....	Autopsy.....	Cause of death.....	Arsenic.....
13292B	May 8		Viscera.....	Poison.....	Undetermined.....
14057B	May 27	<i>Franklin county</i> St. Albans.....	Autopsy.....	Cause of death.....	Negative.....
14192B	June 1	<i>Orange County</i> Corinth.....	Eggs.....	Spoilage.....	Pending.....
14547B	June 11	<i>Rutland County</i> Brandon.....	Fowl.....	Poison.....	Decayed.....
14951B	June 24		Urine.....	Poison.....	Negative.....
14983B	June 24	<i>Proctor</i> Proctor.....	Urine.....	Poison.....	Pending.....
14990B	June 24		Urine.....	Poison.....	Pending.....
14991B	June 24	<i>Rutland</i> Rutland.....	Flour.....	Poison.....	Pending.....
15044B	June 24		Urine.....	Poison.....	Pending.....
14775B	June 27	<i>Proctor</i> Proctor.....	Urine.....	Poison.....	Pending.....
14750B	June 18		Water.....	Poison.....	Pending.....
15318B	June 17	<i>Rutland</i> Rutland.....	Urine.....	Poison.....	Pending.....
15319B	July 2		Raisins.....	Poison.....	Pending.....
15320B	July 2	<i>Rutland</i> Rutland.....	Crackers.....	Poison.....	Pending.....
15321B	July 2		Cake.....	Poison.....	Pending.....
15322B	July 2	<i>Rutland</i> Rutland.....	White powder.....	Poison.....	Pending.....
15323B	July 2		Corn starch.....	Poison.....	Pending.....
15324B	July 2	<i>Rutland</i> Rutland.....	White powder.....	Poison.....	Pending.....
15325B	July 2		Salt petre.....	Poison.....	Pending.....
15326B	July 2	<i>Rutland</i> Rutland.....	White powder.....	Poison.....	Pending.....
			Baking powder.....	Poison.....	Pending.....

15327B	July	2	Rutland	White powder	Poison	Pending
15328B	July	2	Rutland	Hellibore	Poison	Pending
15329B	July	2	Rutland	Corn starch	Poison	Pending
15330B	July	2	Rutland	Borax	Poison	Pending
15331B	July	2	Rutland	Water	Poison	Pending
15332B	July	2	Rutland	Milk	Poison	Pending
15333B	July	2	Rutland	Sugar	Poison	Pending
15334B	July	2	Rutland	Butter	Poison	Pending
15335B	July	2	Rutland	Corn meal	Poison	Pending
15336B	July	2	Rutland	Milk	Poison	Pending
15337B	July	2	Rutland	Salt	Poison	Pending
15338B	July	2	Rutland	Flour	Poison	Pending
15339B	July	2	Rutland	White powder	Poison	Pending
15340B	July	2	Rutland	Pork	Poison	Pending
15341B	July	2	Rutland	Brine	Poison	Pending
15342B	July	2	Rutland	Misc	Poison	Pending
15343B	July	2	Rutland	Misc food	Poison	Pending
15344B	July	2	Rutland	Nitre	Poison	Pending
16222B	July	27	Cuttingsville	Catsup	Poison	Negative
15370B	July	6	Florence	Urine	Poison	Negative
14223B	June	2	Ludlow	Flour	Poison	Negative
14308B	June	3	Windsor	Autopsy	Cause of death	Bullet wound head (suicide)
Total		50				

MEDICO-LEGAL CASES.

SPECIMENS EXAMINED BY ORDER OF A SUPERIOR JUDGE OR THE ATTORNEY GENERAL FROM AUGUST 1 TO NOVEMBER 1, 1920.

Lab- oratory Number	Date Rec'd	Town	Material	Examined for	Result
		<i>Chittenden County</i>			
16645B	Aug. 9	Burlington	Liquid	Alcohol content	6.24%
16646B	Aug. 9	Burlington	Liquid	Alcohol content	6.2%
17665B	Sept. 7	Underhill	Autopsy	Cause of death	(Auto accident) Infected Wound.
17673B	Sept. 8	Burlington	Fish	Poison	Negative
17718B	Sept. 9	Winooski	Autopsy	Cause of death	Hemorrhage (auto accident)
17748B	Sept. 9	Winooski	Clothing	Evidence	
17747B	Sept. 10	Westford	Autopsy	Cause of death	Brain abscess
17749B	Sept. 10	Westford	Tissue	Poison	Negative
17750B	Sept. 10	Westford	Tissue	Poison	Negative
17751B	Sept. 10	Westford	Tissue	Poison	Negative
17752B	Sept. 10	Westford	Water	Poison	Trace of lead
17753B	Sept. 10	Westford	Water	Poison	Trace of lead
17754B	Sept. 10	Westford	Water	Poison	Trace of lead
18396B	Sept. 28	So. Burlington	Hog's viscera	Poison	Arsenic
18864B	Oct. 11	Burlington	Autopsy	Cause of death	Hemorrhage and shock (auto accident)
19005B	Oct. 13	Winooski	Autopsy	Cause of death	Cardiac exhaustion
19012B	Oct. 13	Winooski	Viscera	Poison	Negative
		<i>Lamoille County</i>			
16449B	Aug. 3	Johnson	Autopsy	Cause of death	Case pending
16450B	Aug. 3	Johnson	Viscera	Poison	Negative
17365B	Aug. 31	Johnson	Clothing	Evidence	
		<i>Orleans County</i>			
17634B	Sept. 7	Barton	Autopsy	Cause of death	Bullet wound head (accidental)
18011B	Sept. 16	Barton	Revolver and cartridges	Evidence	
		<i>Orange County</i>			
17041B	Aug. 20	Corinth	Rabbit's stomach	Poison	Negative
		<i>Rutland County</i>			
18685B	Oct. 6	Rutland	Liquor	Alcohol content	35%
18686B	Oct. 6	Rutland	Liquor	Alcohol content	47%
18687B	Oct. 6	Rutland	Liquor	Alcohol content	47%
18688B	Oct. 6	Rutland	Liquor	Alcohol content	38%
18348B	Oct. 12	Fair Haven	Autopsy	Cause of death	Drowning
18349B	Oct. 12	Fair Haven	Urine	Alcohol	Negative
18850B	Oct. 12	Fair Haven	Stomach contents	Alcohol	Negative
18954B	Oct. 12	Fair Haven	Salt pork	Poison	Paris green

19926B	Oct.	23	Rutland.....	Brine.....	Arsenic.....	Negative.....
16856B	Aug.	14	Montpelier.....	Liquid.....	Alcohol content.....	6.6%.....
16857B	Aug.	14	Montpelier.....	Liquid.....	Alcohol content.....	3.6%.....
17289B	Aug.	28	Moretown.....	Cow's stomach.....	Poison.....	Negative.....
18303B	Sept.	26	Montpelier.....	Autopsy.....	Cause of death.....	Shook from unknown cause.....
18305B	Sept.	26	Montpelier.....	Viscera.....	Poison.....	Negative.....
19044B	Oct.	21	Barre.....	Beer.....	Alcohol content.....	5.7%.....
19045B	Oct.	21	Barre.....	Wine.....	Alcohol content.....	8.4%.....
19046B	Oct.	21	Barre.....	Wine.....	Alcohol content.....	6.5%.....
20229B	Oct.	26	Springfield.....	Beer.....	Alcohol content.....	.85%.....
20230B	Oct.	26	Springfield.....	Beer.....	Alcohol content.....	.85%.....
Total	42					

